AMD AND TACC CONSOLIDATION: A DELPHI STUDY

GRADUATE RESEARCH PAPER

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Abstract

This research examined the impact of a proposed consolidation of the geographic Air Mobility Divisions (AMD) and the Tanker Airlift Control Center (TACC). The researcher conducted a three-round Delphi study of 20 Air Force senior leaders in order to ascertain the potential positives and negatives of Mobility Air Forces command and control (C2) consolidation. While the study did not achieve panel consensus in all researched areas, it did highlight some areas of significant concern that should be explored before pursuing any further discussion of consolidation. The study also underscored the current organizational success areas for both AMDs and TACC. Clearly, the consolidation conundrum does not lend itself to precise analytical methods, but the Delphi study provided subjective judgments from a collective panel of people knowledgeable in this area in order to establish foundational information.

The intent of the study was to provide a basis for Air Force leaders, so that decisions can be made to shape and mold the future construct of the Mobility Air Force C2 enterprise. However, the panel results appear to indicate that given current information and context, AMD consolidation should not be a desired end state at this time. Yet, as the Air Force continues to evolve and new technologies and information develop consolidation should be revisited.

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Col John Roscoe, 15 WG/CC
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Col Ken Linsenmayer, 613 AMD Chief
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Mr. Richard Richardson, TACC/XOZ
Lt Col Shad Vinson 607 AMD Chief

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I. Introduction

"Many branches of the service as yet fail to realize the logistical requirements for transportation by air."
Brigadier General Harold George

Background, Motivation and Issues

As the decade plus war in Afghanistan draws down, the physical and fiscal landscape within the Department of Defense (DOD) is evolving. Not only is the geo-political environment changing after this war, but so too are the challenges facing the United States both internally and externally. One of those changes is the trials of a constrained national budget. Subsequently, these fiscal realities have resulted in reductions across the DOD and have significantly impacted the Air Force. As a result, the Air Force is continually examining which programs or processes to downsize or delete in order to create efficiencies and lower its overhead structure. One of the proposed reductions is the consolidation of the regional Air Operations Center (AOC) Air Mobility Divisions (AMDs) into the Tanker and Airlift Control Center (TACC) at Scott Air Force Base in Illinois.

Reengineering the AMDs and TACC could be a powerful force multiplier to enhance support to the warfighters. However, the Air Force is not reengineering. Rather through consolidation, the Air Force is attempting to execute a routine budget slashing drill where the Air Force exchanges personnel savings for fiscal reductions. The problem is that these cuts potentially do not reengineer or enhance the mobility command and control enterprise but instead weaken it.

Historically, the Air Force has turned to manpower reductions when faced with financial constraints. One has only to go back to the program budget decision (PBD) 720 in 2007 to bear witness to the Air Force's ill attempt to exchange finances for manpower. In PBD 720, the Air Force leadership attempted to recapitalize and modernize the aircraft fleet through the exchange of 40,000 service members for financial capital. Ultimately, this exchange was successful in the short term but the Air Force suffered long term with far reaching personnel repercussions. Unfortunately, the reason was the DOD realized the savings instead of the Air Force and re-appropriated it to other struggling services within the DOD (Air Force Article, 2007).

While some may debate if PBD 720 was a success or failure, today's shrinking financial environment has resurfaced the idea of trading manpower for dwindling fiscal resources. Without some proactive foresight, the Air Force should understand that process reengineering is more important than reactive behavior. Alas, the Air Force typically modifies or alters the existing business processes only after reductions are made, but rarely is the new process an enhancement or optimization of the old one. Ultimately, the cuts were simply a budget driven exercise and did not achieve an overall improved organization.

However, the question the Air Force must really ask, is does this change or reduction add value to the customer whom it serves? Conversely, the Air Force could proactively examine the goals and desired end-state of the Mobility Air Force (MAF) command and control (C2) enterprise. Then by working backwards from the goal, the Air Force could reengineer the mobility command and control enterprise process to reflect that desired outcome. By reverse engineering the process this results in two

conclusions. First, reengineering ensures the Air Force provides the level of intended service and secondly it allows the Air Force to address, fix and ultimately optimize the MAF C2 process. As an additional byproduct of the reengineering, the Air Force may also be able to capitalize on manpower savings. Conversely the Air Force establishes the reductions as the baseline, then reshapes organizations after the cuts are made in order to drive the continued organizational output. Yet in this example, the Air Force never yields a truly effective organization designed to optimize its goals; rather, the resulting organization rarely matches the desired end state. Instead, the new organization is now simply smaller and performing at a less than optimal level. Similarly, the potential problematic outcome is now the MAF C2 enterprise is both less responsive to its customer and cannot provide the same level of required service.

If the Air Force is able to truly address the mobility enterprise, a proactive and visionary approach is recommended. One must scrutinize the current mobility C2 enterprise and determine the desired and required functions before the reductions become reality. For example, current individual components of the enterprise might be broken and require radical redesign of the MAF C2 architecture. However, in many other areas the MAF C2 enterprise is one of the most successful components of the entire Air Force C2 architecture. Potentially, through a thorough internal examination of the collective MAF C2 process, the Air Force could achieve an optimal desired end state. A complete top to bottom review of all MAF C2 could allow the Air Force actually achieve dramatic improvements in the measurements of mobility performance, by virtue of cost, quality, service and speed to the customer, all while achieving additional manpower savings (Hammer and Champy, 2003).

The intent of this study is not to be a litmus test advocating for or against AMDs consolidation into TACC. Rather this research simply seeks to provide senior Air Force leaders (SL) information so they have the ability to make informed decisions on the matter of consolidation. This research is not designed to be the sole determinant used in this clearly elaborate decision process. Instead, it hopefully amplifies some key factors that Air Force SLs, from all backgrounds, believe are important for mobility C2. This research, through the opinion of a SL panel, amplifies and prioritizes key areas that a future MAF C2 reengineering team could focus on while innovating a new MAF process. This research attempts to establish a foundation of what critical areas the MAF C2 enterprise could concentrate and focus on. Regardless, if the future Air Force leaders pursue total consolidation, a hybrid consolidation or simply the continuation of the organizational status quo, these panel focus areas are important across all MAF C2 organizations.

Research Problem Statement

The overall problem statement is where should the Air Mobility Divisions be located in the command and control structure? Should they remain under the individual COCOMs, be consolidated at the TACC, or should they be a retooled hybrid organization that harnesses positive traits of both organizations. To answer that overarching problem, four sub problems were developed to ascertain the solution to that issue.

1. Does the consolidation of the Air Mobility Divisions under the TACC yield tangible and worthwhile efficiencies?
2. Would the AMD consolidation into TACC result in degradation in performance or effectiveness of MAF C2?

3. Would a consolidated MAF C2 organization be less responsive to the desires of the customer, the geographic combatant commanders (GCCs) and their designated JFACC?
4. Would a consolidated MAF C2 organization be more focused and attentive to the needs of those same commanders?

Research Objective and Focus

The research examines these four sub problems with the main objective of answering what is the preferred end state and goals of the MAF C2 consolidation. Some of the sub objectives within this paper include the following:

1. What value does the AMD provides to those GCCs and what would be lost from consolidation.

2. Will a consolidated MAF C2 organization be more efficient since combined manning could result in a more effectively managed and optimized global airlift resources?

3. If consolidation yields a more efficient organization will that same proposed organization be more adept at meeting the needs of the GCCs as compared with the existing construct of TACC and regional AMDs.

4. Conversely after consolidation, will TACC absorb the manpower but not refocus on the needs of the GCCs and the GCCs ultimately lose both manpower and focus.

5. Similarly after consolidation, potentially a GCC would not have a single air component commander orchestrating all the air power in the region under his or her

command umbrella. How does that change affect the ability of the GCC to project power over his or her geographic region?

Overall the individual sub objectives relate back and amplify information within the overarching research problem.

There are numerous positive and negative factors, but the decision is largely constrained by the continued battle over command relationships and spheres of influence. One of the most significant issues that the Air Force needs to tackle before any consolidation takes place is the concern over the commander's unity of command. Similarly, should the Air Force allow fiscal constraints to drive doctrinal changes? Doctrinally the AMD works for the JFACC as part of a consolidated command structure executing the COCOM's war plans. However, if the Air Force removes this integral division from the current command structure, does the Air Force violate its own doctrine and the joint doctrine in which it attempts to integrate? While the Air Force has the prerogative to modify doctrine, is the Air Force modifying its doctrine for solely financial reasons? Instead should the Air Force rely on tested and tried historical doctrinal foundations? Conversely, a healthy evolution of adaptable doctrine can be instrumental in warfare as well. As will be discussed later in Chapter II, the Air Force has already struggled in past history with many of these organizational challenges.

Benefits and Implications of the Research

The U.S. is increasingly dependent on the Air Force's rapid global mobility to project military capability by air. With the reduction of forward bases around the world, a redistribution of troops to the CONUS, and a shrinking military force, the DOD absolutely requires a robust airlift and air refueling capability to meet the national

objectives. However, a fundamental premise for the success of rapid global mobility is the requirement of effective C2. Without adequate C2 there cannot be successful implementation of global reach. Likewise whether the Air Force is ready or not, it is facing fiscal realities which will drive organizational changes. Therefore, the Air Force can choose to be in front of the transformation or merely react to it. These rapidly impending fiscal realities seem to indicate that now is the time to embark on reengineering changes.

Since the inception of organized military forces, commanders have always struggled with their span of control and influence over the forces he or she has direct authority over. Since history often repeats itself, the 21st century Air Force is no exception spared the epic command relationship struggles. Even today, the geographic COCOM commanders and their subordinate JFACCs tussle with TRANSCOM and AMC over their span of command and control.

During peacetime and wartime, both the regional AMDs and TACC provide C2 of mobility assets. In an interesting way, AMDs can provide actual aircraft even though they may or may not actually own aircraft. For example in SOUTHCOM, the GCC does not inherently own any mobility assets so one might ask, what value does the AMD provide to the designated customer? The key is that they provide a 'service' to the commander or organization. That service is the oversight or command and control of mobility assets. Some believe the AMD provides a service of responsive, flexible and synchronized MAF assets which deliver time and location sensitive requirements to support the customer's priorities. In other COCOMs the AMDs own the C2 process and the actual aircraft delivering the supplies. This is not always the case as for all COCOMs

as SOUTHCOM, NORTHCOM and United States Forces Korea (USFK) do not have any mobility aircraft primarily assigned to them on a routine basis. However, AMDs still provide a vital service to the commander. AMDs deliver adaptable and integrated C2 to support that JFACC's priorities and intent. In other regions like in CENTCOM, the JFACC does not normally have mobility assets assigned to them but for specific operations the Secretary of Defense designates some assets as CHOP'd (change of operational control) to their control. This discussion of assets is discussed later under doctrine in Chapter II.

In examining the TACC and AMD, one must be careful in quantifying the differences of both organizations. In another research thesis, Major Jeffrey Brown 2005 at the School of Advanced Air and Space Studies found that TACC controlled 70.9% of mobility lift within the Air Force. Comparatively, the individual theaters were responsible for only 10.2% and the Air Force Reserve and Guard conducted 18.8% of the mobility lift. From simply a numerical standpoint, the impact of the AMDs might look insignificant (Smith, 2005:37). The question is, would the removal of this perceived inconsequential 10% make the theaters ineffective in their missions and less responsive to their individual COCOM requirements?

For example, the AMD provides services to the JFACC do not always reach the same level of volume or scope that TACC provides to other COCOMs. Subsequently, some pundits downplay the impact of the individual AMDs because they interpret mass and volume of a MAF C2 as the determinant of effectiveness. Yet that presumption often fails because the timeliness and the accuracy of those mobility services rendered can be just as critical or even more important than the volume of mobility C2. An illustration of

this point is the potential NORTHCOM commander's value placed on a single C-130 equipped with the Modular Airborne Fire Fighting System (MAFFS). In fact this individual aircraft could be the GCC's number one priority and its delivery to the California wildfires are no-fail missions. However, TACC simultaneously manages dozens of JCS priority 1A3 missions, and while not intentional, they may lose visibility over that single NORTHCOM C-130 aircraft because the TACC is executing C2 over a large volume of missions spread across numerous COCOMs. Therefore, volume does not always equate to good customer service. Just because someone can provide you more of a product or service does not necessarily mean the customer is thereby more satisfied. In fact, one misstep can overshadow hundreds of successful missions.

Some believe that through a complete centralization of MAF C2 everyone will automatically have an omniscient mobility sight picture over all the COCOMs. However, knowing all the combatant customers' requirements takes constant communication and dedication. Individual AMD's assigned to their respective COCOMs appear to have a greater focus on being could be seen as being in lock-step directly with that JFACC's needs more than TACC which can be servicing nine different JFACCs. If the AMDs were dissolved and centrally managed, would TACC be more effective and efficient in serving the customer? In many ways, the definition of effective and efficient resides with the customer, the JFACC. While military requirements often require that effectiveness take precedence over cost and efficiency, this should not exclude the Air Force from seeking cost savings where it is logically feasible. Yet again, if the JFACC, as the customer, does not receive their mobility assets because it was re-tasked to another COCOM, that JFACC is going to want answers. Just as many folks want their home

insurance agent whom they can look in the eye when they lose their home in a natural disaster, so too a JFACC prefers a local AMD or similar representative to provide them a mobility perspective. The key is who knows the customer best, often times it is the individual that spends the most time with their clients. Unfortunately, the TACC is geographically separated from the COCOMs and often falls victim to the adage, virtual presence is actual absence.

Conversely, individual AMDs can also have a myopic view of the world strictly from their AOR perspective. In turn, AMDs may incorrectly prioritize missions when in fact another COCOM may have more urgent requirements. This is because the individual AMDs do not have a complete global understanding and all-encompassing sight picture. Every JFACC would prefer their individual priorities to be number one but in a fiscally constrained world not every requirement can obviously be number one. Therefore, having a central clearing house to adjudicate and manage these conflicting requirements is both healthy and beneficial.

It also appears JFACCs prefer a single interface in which they can go request mobility lift and then maintain direct oversight through execution. JFACCs do not want to be burdened by a laborious bureaucratic process in order to get their mobility approved and executed. Proponents for centralization contend that this vetting is a crucial part of the MAF process to ensure that requests are accurately globally prioritized and ensures that all requirements are sourced in proper order. Likewise, TRANSCOM and TACC utilize the JCS cargo priority system to rack and stack the priority requests. However, at times the actual priorities are articulated by mid-level managers within organizations. Potentially without AMD intervention, regional momentum can be lost when no one

actively pushes or facilitates the process on behalf of the JFACC. Instead, JFACCs could debate the speed and the accuracy of the mobility execution can often break down. Without senior management interjection, from flag officers at the COCOMs, JFACCs perceive the approval process as burdensome. However, by having mobility experts, in the form of a regional AMD within a COCOM, a JFACC can often timely resolve issues without having to elevate the concerns to the senior officer levels.

Advocates for centralization believe a JFACC would prefer to have a flexible and powerful organization, like TACC, which is in tune with their regional priorities instead of a resource constrained individual AMDs. However some opponents of consolidation view TACC's responsiveness as sometimes lacking due to organizational inertia and inherent large bureaucracy. As a result, they contend TACC ends up being more of a crisis center cell dealing with the current mobility issues around the world rather focusing on being an agile and flexible mobility enterprise. Potentially to help combat this natural organizational inward focus, TACC should strive to be a forward planning C2 enterprise looking to shape and forecast the mobility battlefield for the GCCs. Likewise the inherent tendency for a large organization is to expend large manpower and resources reacting to the ever changing requirements of the COCOMs, rather than proactively synthesizing and integrating into a long-term strategic mobility plan.

Nonetheless, the intent is not to argue that the AMDs are perfectly focused on their JFACC customers. However, a JFACC can reach out to his AMD and demand they inject themselves into facilitating and articulating his mobility needs. Often times, the AMD is that closest representative to that single end JFACC customer. Typically, that AMD is small in size and only has a small staff of between 3 to 80 personnel (609th

AOC/AMD, 2013). Compare this to TACC's nearly 700 personnel working the issues of 9 different JFACCs (618th AOC/XON, 2013). Not all AMDs are run perfectly, but some contend they have the potential to be closer to the customer by sheer proximity.

In addition to being the JFACC's current mobility representatives, AMDs also represent the surge mobility C2 capability in the event of war. If a particular COCOM has to ramp up operations due to conflict, the AMDs provide that regional expertise and baseline manpower. However, in peacetime operations the AMDs can be seen as redundant and excess capacity. Another concern is how well does TACC execute in routine steady state operations compared to their operations in full scale theater war. Balancing the need for military surge capacity and cutting waste to ensure lean operations is a delicate balance.

Another concern of consolidation is what if the central location of TACC experiences a catastrophic world event, either man-made or natural disaster. How would the mobility enterprise provide continued support if all the mobility C2 is solely managed at TACC? By retaining some residual capacity in the geographic regions, this precludes an adversary from successfully attacking and destroying a single MAF point of failure either kinetically or non-kinetically.

To further emphasize this concern of a single location and the necessity for alternate mobility C2 locations, Scott Air Force Base and TACC are located along the New Madrid seismic zone. Unfortunately, this is one of the largest fault zones in the United States. As one can see from Figure 1, it is preposterous to believe that the area could not experience some degree of earthquake activity. Therefore, it is extremely prudent to have operational alternate command centers and distributed personnel ready in

a case of an emergency. Therefore, it would be logical to have residual MAF C2 capability at a single or several AMDs.

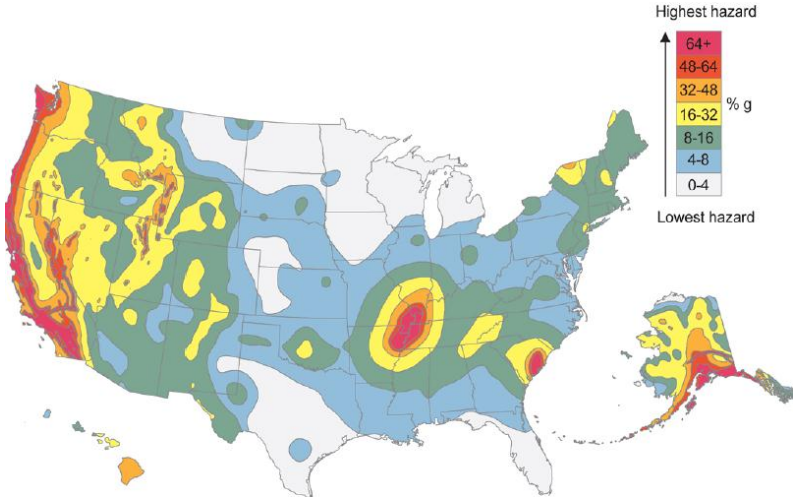

Figure 1: US Probability of Fault Zones
(Fogler, 2010)

Regardless of whether consolidation is pursued or not, a potential problem between TACC and the regional AMDs is that the relationships can be viewed as a win-lose outcome versus a joint win-win. TACC's relationships with AMDs should not be adversarial but rather complimentary in nature. Similarly, AMDs should understand that they inherently do not possess all the tools to be successful without the institutional mobility muscle that TACC brings to the battlefield. Likewise, AMDs should understand that TACC is not an adversary, but they are the reach-back mobility C2 capacity that AMDs lack on a routine basis. Similarly, TACC should realize that the AMDs are the forward MAF C2 presence and can act as the eyes and ears of the mobility enterprise. Inherently, AMDs are geographically closer to the JFACCs and can be on the pulse of the end customer because they are co-located. Both organizations should view the

relationship as winning or losing but instead ensuring the GCC and the JFACC are successful. When the GCC and JFACC wins, then all parties involved are successful. It is easy to become consumed with measuring the daily metrics and keeping score, but in reality both TACC and AMDs really serve a common purpose of supporting the war fighting GCCs as established by law under the Goldwater-Nichols Act of 1986 (Joint Chiefs of Staff, 1986).

On the other hand, the other issue is a lack of competition. The GCC, as the customer, has little competition if the mobility C2 enterprise is not providing adequate service. The GCCs are stuck with the service that the TACC and AMD provide. However, because they directly own the AMD, through the JFACC, they can control and directly implement changes. However, the GCCs and the JFACCs have no direct command authority over TACC and TRANSCOM. Unfortunately, unlike other commercial businesses the JFACCs have absolutely no ability to outsource their MAF C2 because it is a monopoly service with no competition. Likewise, this lack of competition can allow organizations to look inwardly rather than externally at their customer's needs. As a monopoly grows, these organizations tend to focus on their internal processes and choose not to enhance the service that they provide because the customer does not have a provider choice. Additionally, complicating the monopolistic situation is the fact that the demand for airlift assets and C2 will always exceed the capacity available. Therefore, with a demand that exceeds supply and little to no competition, the natural organizational tendency is for a rise in marginal service across the customer service spectrum.

Case for Change

Despite not being a business for profit, even the Air Force must determine two critical issues if it wants to be truly successful. First, who is its customer and second, what is the product or service it provides to that customer? On the surface this may appear to be a simple question, but in reality it is far more challenging proposition to answer. On a smaller scale, the regional AMDs and TACC also face these critical questions.

The researcher would argue that the regional AMDs primary customer is the JFACC, who works directly for the GCCs as dictated by the Goldwater-Nichols Act of 1986. The Goldwater-Nichols Act established the GCCs as the primary Joint war fighting commanders within the DOD. Their chain of command flows directly to the Secretary of Defense and the President (Joint Chiefs of Staff, 1986). However, one must be careful not to automatically assume that because the AMD works for the JFACC and the GCC they always are the customer. Typically this is the reality, but not in all situations. For example, NORTHCOM's 601st AOC/AMD conducts many mobility command and control operations for non-DOD assets. An instance of this is when the 601st AMD executes homeland Defense Support of Civil Authorities (DSCA). In this case, by law the DOD takes a secondary role to that of civilian authorities and the Federal Emergency Management Agency (FEMA) is the lead responsible organization. In this situation, one could make the case that the primary customer is no longer the DOD. Rather, FEMA is the primary customer. Likewise, in an international disaster relief situation like Haiti the GCC and the DOD take a secondary role to that of USAID and to the United Nation World Food Program. In this particular incident, the 601st AMD

provided ground coordination services to all aviation assets in order for aid to flow into Haiti. In both of these above situations the GCC, through the JFACC, was intimately involved in the process but in neither situation are they the end customer of the AMD.

Again, the goal of this study is not to be a litmus test advocating for or against the AMDs consolidation into TACC. The purpose of the study is to simply provide senior Air Force leaders information so they can make an educated and informed decisions on the matter of consolidation and what affect that may have on the war fighters. The research allows us to focus on the products and services MAF C2 provides to those customers. This research is not intended to be a single source document. Rather, this research will highlight some SL perspectives and areas they believe are important for mobility command and control. It is not a matter of concern 'if budget constraints will affect mobility C2', but rather a matter of when. This research will address some of those emphasis areas and explore MAF C2 process reengineering rather than arbitrary budget and personnel cuts. Hopefully this research will help senior leaders examine a reengineering approach to these outward driven fiscal changes and may even lead to an innovative, leaner, and more responsive new MAF C2 process.

A literature review is next discussed in Chapter II, followed by the research methodology in Chapter III. The paper will then transition into Chapter IV to analyze the research data and finally conclude in Chapter V by highlighting the managerial implications and future recommendations.

II. Literature Review

"To have a truly strategic striking force, logistics must be strategically mobile and flexible as the force it supports."
General Hoyt Vandenburg

This literature review first examines the general history and rise of air mobility. The review then transitions into the specific development of the mobility C2 enterprise and covers the current doctrine addressing mobility C2. Similarly, the review also examines the modern day air mobility C2 architecture. Finally, the literature review concludes with a brief historical discussion of the Delphi study which is the methodology used in this research.

History of Air Mobility Command and Control

In the early 20th century the first military aircraft were predominately viewed as combat aircraft and employed initially in reconnaissance missions. However, military leaders started to see the value of aircraft beyond just reconnaissance and started to modify the aircraft to serve both as bombers and fighters. This first generation of aircraft were small and had limited cargo and troop carrying capacity. As a result, it wasn't until post World War I the Army Air Corps finally established the Ferrying Command (Hutchenson, 1999:64). In the interwar years, the size and capability of aircraft rapidly expanded for both the military and civilian. Likewise, the Federal government was instrumental in this civilian expansion with passage of the Kelly Air Mail Act of 1925. This landmark legislation authorized the postal service to contract its air mail delivery to air carriers. Similarly in 1926, Congress passed the Air Corps Act. This fundamental legislation not only formally created the Air Corps but now established an Assistant

Secretary of War for Air (Military Airlift Command, 1991:5). This legislation marked the rise of air power dominance, not just for combat aircraft but for air mobility, within the U.S. military. Even still in the wake of WWI, the U.S. opinion was largely isolationist and anti-war, which resulted in the War Department focusing mostly on defensive capabilities and homeland defense (Hutchenson, 1999:4).

However by 1941, the U.S found itself fully engaged in another world war. Not long after in 1942, General Hap Arnold created the Air Transport Command (ATC), which was responsible for transport and ferry of supplies and troops (Military Airlift Command, 1991:19). As combat operations in World War II developed, senior U.S. military and civilian leaders started to grasp how instrumental and impactful air mobility was. Examples of WWII air mobility success included the delivery of supplies to China over the Burma Hump (Figure 2) or the combat delivery of over 13,000 airborne troops behind enemy lines during the Normandy invasion in France. These two events alone demonstrated the strategic importance of air mobility in modern warfare (Miller, 1988:114).

Figure 2: C-47s Flying the Burma Hump WWII
(Tunner, 1964:55)

Yet, all air mobility operations were not all glamorous and faced their own set of growing challenges. Despite all the successful air mobility operations, General Hap Arnold realized that the mobility enterprise still needed to mature in order to be fully effective. He went on to elaborate that the mobility operations desperately needed more command and control structure. He stated that the mobility structure was "very much a barnstorming set-up--without proper organization, standardization, maintenance, or discipline" (Miller, 1988:51). Similarly General George, ATC's World War II commander, also amplified the control challenges both inside ATC and with other commands. General George highlighted that there had been frequent interruptions in ATC service because of the erroneous assumption by fellow commands that "transport operations that traverse their areas are under their complete control" (Miller, 1988:51).

An example of these command and control problems was during the Burma airlift where Lieutenant General Tunner, commander of the transport operation, was challenged

by General Claire Chennualt, the commander of the Flying Tigers of the 14th Air Forces in China, over theater airlift distribution and control within China. General Chennault insisted that once those airlift assets entered China that he should control and direct those mobility assets. General Tunner countered that he should maintain single control of transport resources to ensure the most effective utilization of those assets. In the end, General Tunner won the debate because General Chennault was preoccupied with full time combat operations and a renewed Japanese invasion (Tunner, 1964:116). Even through all the command struggles and chaos of WWII, by 1945 ATC had carried over 4 million passengers and flown 2.7 billion mobility miles (Miller, 1988:74). Clearly, air mobility played a decisive strategic role during WWII.

Even in the wake of WWII and with years of a shrinking military, the nation still continued to see the rise of air power. Subsequently in September 1947, the President established the Air Force as a separate service. Shortly after, in June 1948, the Air Force formed the Military Air Transport Service (MATS) at Scott Air Force base in Illinois to direct all mobility operations. The Air Force designated General William Tunner as the first commander of MATS (Ulanoff, 1964:26). MATS exercised operational control through its geographic Transport Control Centers (TCC) and Division TCCs. MATS also developed two primary control divisions, the Pacific region, Western Transport Air Force (WESTAF) and the Atlantic division (EASTAF) (Ulanoff, 1964:57).

General Tunner and MATS had little time to wait for work as the Berlin Airlift presented itself as the first international mobility challenge just 1 month after MATS was created. For the next 13 months, June 1948 to August 1949, MATS utilized all available mobility resources to ensure the success of the Berlin Airlift and prevent the Soviets from

imposing their will on Germany and the Allies. In total, the U.S. flew over 266,600 flights and delivered more than 2.2 million tons of supplies to Berlin. Operation VITTLES (Figure 3) was a landmark event that demonstrated to the world that mobility operations could shape not only wartime operations, but air mobility was strategically important in peacetime too (Military Airlift Command, 1991:69-72).

Figure 3: C-47 Operation Vittles-Berlin
(Authentic History, 2012)

While the Berlin crisis solidified the importance of air mobility at the strategic level, MATS still internally struggled with the precarious balance between strategic and tactical airlift fleets and control in an era of decreasing budgets. General Kuter, the new MATS commander, strongly advocated for the requirement of additional troop carrier aircraft capable of assault airlift and intra-theater logistics for theater commanders (Miller, 1988:196-197). Shortly after, in 1950, the Korean peninsula erupted in war when the North Korean communists invaded South Korea in an attempt to unify the peninsula. As a result, many of the MATS operations shifted from strategic to more

individual tactical interventions supporting General MacArthur's larger scheme of maneuver. MATS tactical actions were instrumental in first repelling the North Koreans and then moving the battle forward into North Korea and towards the Yalu River. Many of these airlift operations were small scale paratroop operations, air-land operations, or airdrop missions supporting frontline troops. Clearly, MATS tactical airlift was indispensable to General MacArthur's attacks in 1950 and saved countless lives by providing air supplies to combat areas otherwise undeliverable by surface supply and support. In fact, air drop (Figure 4) became a normal occurrence with MATS delivering 8,000 tons a day by air during the push to the Yalu River (Miller, 1988:213).

Figure 4: Korean War C-119 Box Car Air Drop
(McGowan, n.d.)

Two important outcomes resulted from the Korean War operations. First, Air Force leadership realized that MATS needed to have aircraft capable of strategic impact and capability. Second, the Air Force could not overlook the necessary requirement to have a tactical fleet of aircraft that could expedite the needs of the theater commander.

Ultimately, the Korean conflict operated under two largely independent strategic and tactical control systems that operated autonomously of each other. Compounding the problem was that each service managed its own individual airlift systems for their service's individual goals (Kee, 1996:54).

Notwithstanding, these experiences helped mold the interwar period and facilitated the spawn of both new strategic and tactical airlifters. Ultimately, the DOD and MATS began examining the entire mobility fleet and likewise investigated the question of mobility command and control. After many internal reviews, the DOD in December 1957 directed the Air Force Secretary to serve as the single manager of airlift service for the entire DOD and established a sole organization, MATS, as the responsible executive agent for both commercial and military aircraft in war and peace. The DOD intended this single responsible organization to orchestrate and choreograph all available DOD airlift resources, not just Air Force assets, to meet all required requirements (Military Airlift Command, 1991:92-95).

In the years following the Korean War, a new mobility era emerged high-lighted by the election of John F. Kennedy as the President of the United States. His first official act as President was to order a military all-jet transport aircraft, the C-141, to expand the reach of the military (Figure 5). President Kennedy went on to state in his first state of the union address:

> I have directed the prompt attention to increase our airlift capacity. Obtaining additional transport mobility—and obtaining it now—will better assure the ability of our conventional forces to respond, with discrimination and speed, to any problem at any spot on the globe at any moment's notice. In particular, it will enable us to meet any deliberate effort to avoid or diver our forces by starting limited wars in widely scattered parts of the globe. (State of the Union Address, 1961)

Figure 5: Strategic C-141A

(McGowan, n.d.)

President Kennedy's advocacy for a robust and resilient mobility force continued to grow throughout his Presidency until his death. Lt Gen Joe Kelly, the new commander of MATS in 1960, further expounded on the MATS emerging role when he stated:

> The increase in emphasis on limited war capability, the Presidentially Approved Courses of Action, and the language of MATS modernization legislation all point to a reorientation of MATS activity from a predominately scheduled operation to a posture responsive to the requirement for rapid global deployment of limited war forces as well as requirements of general war. (Miller, 1988:292)

Conversely, General LeMay, Air Force Chief of Staff, argued before a special Congressional subcommittee that strategic airlift naturally lent itself to strategic centralization, but that tactical airlift clearly performs a different mission and control of it should remain separate. General LeMay said that tactical airlift "did not lend itself to centralized control but rather must be capable of complete integration into the command

structure exercising control of the battle area" (Committee on Armed Services, 1963). General Kelly, MATS commander, argued against Headquarters Air Force that MATS should provide "a centralized airlift command to increase responsiveness, produce economies of force and eliminate duplication" (Miller, 1988:298). He also advocated that a single airlift command would be more agile in shifting assets from one theater to another at the direction of the Joint Chiefs of Staff. Likewise, he contended that to solve obvious theater tensions that MATS would have permanently assigned liaison officers with other theater unified commands. This would allow other commands to have planning input and resources available to them during contingencies (Miller, 1988:300). Once again, the Air Force and MATS saw a natural tension between the diverse strategic and tactical mission sets and the challenges of a single unified mobility command.

In 1966, the Air Force deactivated MATS and established Military Airlift Command (MAC). The new commander General Howell Estes summarized the new organizations vision in this statement. "I feel that this "two-manual" (Tactical and Strategic Airlift) perpetuates post World War II thinking and fails to acknowledge and exploit the full capability of the modern transport aircraft in its primary role" (Miller, 1988:314). However, the Vietnam Era further amplified the division between tactical and strategic mission sets but also theater versus centralized air mobility control. The Vietnam War was fraught with command skirmishes over aircraft control between MAC, the Pacific Air Forces, and CINCPAC, Military Assistance Command –Vietnam (MACV). The MACV commander, General Westmoreland, injected further chaos into the situation by demanding eight in-country C-130s to be under his personal control. Ultimately, the Pacific Forces compromised and provided him four dedicated tactical

C-130s for his indefinite use, not unlike the Army's demand for dedicated airlift in Operation IRAQI FREEDOM (Miller, 1988:327).

A second example of the inherent battle between command resources was the Army acquisition and employment of the C-7 Caribou in Vietnam. The Army argued that the Air Force was not providing time-sensitive tactical airlift and so they acquired the Caribous to address the perceived gap in resources. The two services finally compromised under the adjudication of the JCS. As a result the Air Force relinquished its helicopter airlift role in exchange for the acquisition of the Army C-7s (Military Airlift Command, 1991:132). All told, the Vietnam Era highlighted air mobility achievements like the resupply of Khe Sanh (Figure 6) or the repelling of the North Vietnamese forces during the 1972 Easter Offensive. Despite the rise and success of air mobility in the DOD there was still command relationship challenges both between the joint services but internally within the Air Force.

Figure 6: C-130A departing the runway at Khe Sanh (McGowan, n.d.)

In 1976 the DOD, realizing these perpetual challenges, issued an internal review that examined the deficiencies in Vietnam airlift operations. In response to that DOD review, General Jones, the Air Force Chief of Staff, directed "to achieve better integration of overall airlift, strategic and tactical airlift assets will be consolidated under MAC" (Miller 1998:362-363). This was a drastic departure from the previous policy where C-130s were owned by individual commands. He went on to say "all AF tactical airlift C-130 aircraft and associated support in TAC, Alaskan Command, USAFO (United States Air Forces Southern Command), USAFE, and PACAF will be transferred in place to MAC" (Military Airlift Command, 1991:164). However, this sweeping decision created two follow-on issues, how to organize support to the theaters and should DOD establish MAC as a specified command.

Another significant outcome from the 1976 review was the establishment of the theater airlift manager (TAM) in order to make airlift system more responsive to the regional theater commanders. Under the TAM construct, the designated senior officer would exercise operational control of theater airlift for the Air Force component commander and manage intertheater airlift for MAC. The component commander would task the TAM who in turn would assign resources to ensure the most efficient and effective execution. The TAM would also provide visibility, streamlined access and flexibility to the component commander (Miller, 1988:364). Ultimately, the TAM is the precursor to the present day theater Air Mobility Division.

However, on the issue of the establishment of MAC as a specified command over all air mobility, the Air Force countered and on 13 March 1975 the Secretary of the Air Force formally recommended the Air Force retain MAC as a major command. The Air

Force's rationale was that the creation of a specified command would centralize responsibilities at too high a level. Similarly, the Air Force was concerned the Army and Navy might try and make sealift and surface transportation their own specified commands as well. Nevertheless, the JCS disagreed and on 16 December 1976 the Secretary of Defense directed the implementation of the unified command plan which directed the establishment of MAC as a specified command within the joint structure (Military Airlift Command, 1991:166).

The next landmark influence on mobility control was the Goldwaters-Nichols Act of 1986 which established the inherent authority of a geographic commander. The Goldwaters-Nichols Act modified Title 10 and gave to the individual services the responsibility to organize, train forces, and equip them to fight. However, the geographic commanders, under COCOM, maintained the centralized control within their respective areas of responsibilities. Likewise in 1987, the DOD formed the US Transportation Command (TRANSCOM) as the single DOD manager for strategic air, land, and sea (U.S. Transportation Command, 2013). Figure 7 highlights how TRANSCOM interacted with the other geographic combatant commanders before 1992.

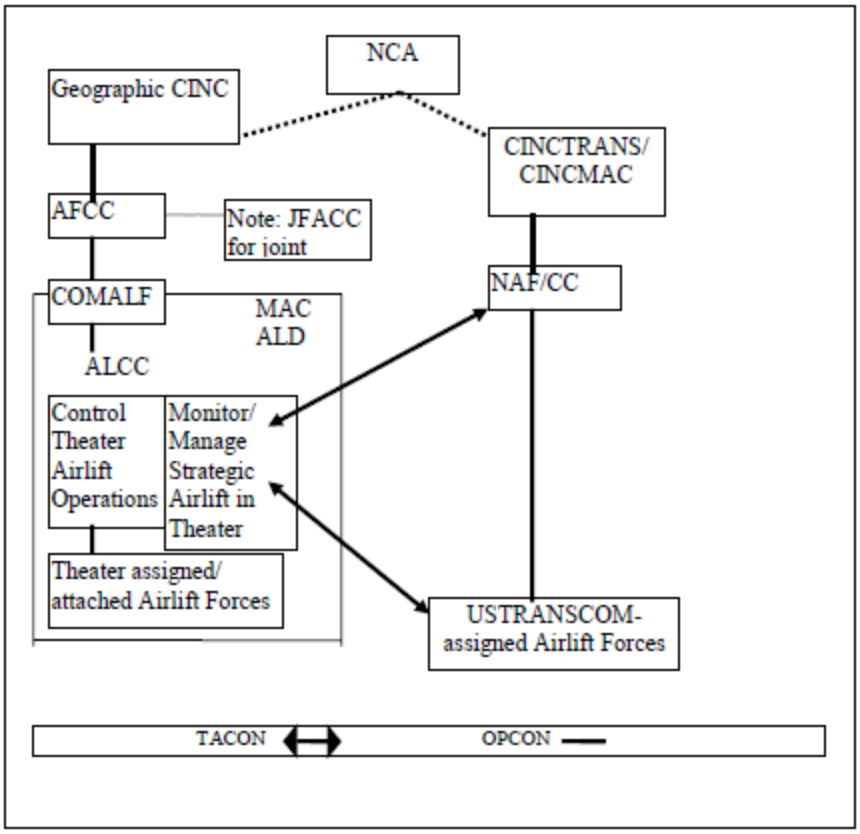

Figure 7: Pre-1992 Doctrine for Contingency Airlift Command and Control (Kee, 1996:54)

By 1992 post-Gulf War, under the direction of General McPeak, MAC's flag was rolled up as the established single air mobility manager and launched Air Mobility Command as the single strategic air mobility manager. As a result, the geographic commanders obtained COCOM of those individual theater airlift forces located within their theaters (Kee, 1996:61). Once again, the distinction was made between theater and tactical forces versus strategic level mobility assets. General McPeak reasoned that "the Air Force's organizational structure had moved away from simplicity in command structures and to a general reliance on a single controlling authority in operations (Krisinger, 1995:32). The result was division of theater airlift assets and control between

AMC and the theater commands. The problem with this division was that the individual theaters were given the assets but not provided the manpower in order to fully manage and control the assets appropriately.

Similarly, the Air Force created the TACC in 1992 alongside the formation of AMC. AMC intended TACC to be the single command element that controlled all the strategic airlift operations. TACC was re-designated as the 618th AOC/TACC on 30 August 2010 as part of the AOC standardization across the Air Force enterprise (618th AOC Mission Brief, 2012:2). For 20 years, the TACC has been on the battlefront for AMC executing global mobility command and control missions. TACC is the primary nerve center for AMC and controls the air component on behalf of the combatant commander of TRANSCOM. TACC is responsible for the planning, tasking, executing and assessment of global airlift, air refueling and aeromedical evacuation operations around the world (618th AOC Mission Brief, 2012:3). The current Air Force vision is "global vigilance, reach and power" and TACC puts into motion the critical reach portion of that vision by executing everything from full combat missions to humanitarian disaster relief worldwide.

However, the C2 pendulum again swung in 1997 when Headquarters Air Force designated that the CONUS tactical C-130s return to the control of AMC as the lead command for air mobility (Figure 8) (Smith, 2005:20). Following the invasion of Afghanistan and Iraq, in September of 2003 the DOD designated TRANSCOM as the distribution process owner for all the services. This change was a vast departure from the previous view that TRANSCOM was to "provide air, land, and sea transportation for the Department of Defense, both in time of peace and in war" (U.S. Transportation Command,

2013). Now the DOD labeled TRANSCOM as gatekeeper of the end-to-end distribution support. The intent was to increase mobility in transit visibility across theaters from creation to foxhole.

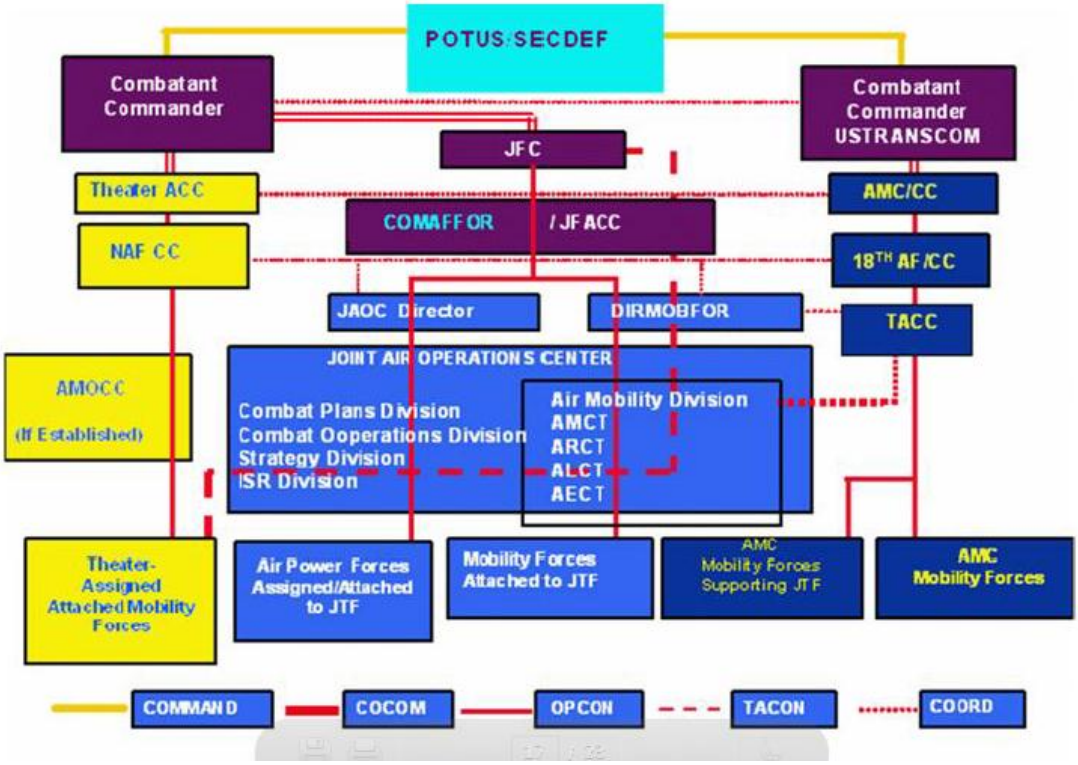

Figure 8: Current AMC C2 Operational Authority
(Air Mobility Command Instruction, 2011:17)

As the 10 years of war dragged on in the Middle East, it became readily apparent air mobility played an inordinately large role within both wars. This fact is exhibited by the distribution of mobility sorties to combat sorties. Of approximately 200 Iraqi sorties in a day in 2006, two-thirds were mobility. Similarly by the end of 2006, AMC had flown over "788,000 sorties, moved 6.44 million passengers, and delivered 3.9 billion pounds of fuel" (Herbert, 2006:49). Additionally, the airlift operations in OIF and OEF surpassed the Berlin Airlift and became the largest airlift operation in history. The Berlin

airlift lasted 18 months whereas the Middle East wars have lasted over 10 years. In 2008, Gen Lichte, AMC Commander, pointed out that the AMC of today "lifts more than half of the average daily tonnage of the Berlin Airlift with only one-fifth the number of aircraft" (Schanz, 2008:40).

Yet, OIF and OEF have not been without their mobility command and control struggles. One example of these command challenges was with the C-17A supporting missions within the Middle East. Traditionally, because the C-17A was a strategic airlift asset, its control was and is presently maintained through the TACC. Whereas, the other C-130s in the CENTCOM theater are CHOP'd to the individual theater commander. Ultimately, this created a unique challenge for the individual control elements of TACC and AMD working through the span of command and control.

Just as history can tend to repeat itself, the mobility C2 challenges and struggles also appear to repeat themselves through history. The pendulum swings back and forth as the Air Force adapts its views on theater and centralized command structures. Unfortunately, it appears that the Air Force is continually relearning some lessons of how to appropriately organize, command and execute air mobility.

Air Mobility Command and Control Doctrine

After examining the history of air mobility, one must now examine the specifics of doctrine. Air mobility is not only guided by service doctrine but more importantly shaped through joint doctrine. Lastly, as a reminder, doctrine is intended to be authoritative but not directive. Doctrine is intended to be a guide and not a restriction in warfare. The decision is left to the individual commanders to shape the organizations in order to best achieve the objectives.

Joint Doctrine

Clearly stated in the introduction of joint doctrine is that "if conflicts arise between the contents of this publication and the Service publications, this publication will take precedence" (Joint Chiefs of Staff, 2009:i). The overarching joint bible for air mobility is Joint Publication (JP) 3-17, *Air Mobility Operations.* JP 3-17 acknowledges that rapid global mobility uniquely contributes to movement and maneuver in warfare and it is a valuable force multiplier that should be employed with great care. Air mobility's value lies in its ability to exploit and enhance the speed, range, flexibility, and versatility of air power.

Due to air mobility's unique impact, JP 3-17 establishes that airlift assets are typically assigned to both TRANSCOM and to the individual combatant commanders. These MAFs are those forces assigned to the combatant commander to provide rapid global mobility and execute global air mobility operations. JP 3-17 further explains that both TRANSCOM and the COCOMs have assets that are capable of performing both intertheater and intratheater mobility operations. However, joint doctrine clearly dictates that "the 618th AOC (TACC) is the C2 node for most intertheater operations." Conversely, JP 3-17 also emphasizes that "centralized control allows commanders to focus on those priorities that lead to victory, while decentralized execution fosters initiative, situational responsiveness, and tactical flexibility" (Joint Chiefs of Staff, 2009:x). JP 3-17 highlights that separate but integrated command structures under TRANSCOM and the individual theaters are crucial to success.

Joint doctrine dictates that normally intertheater airlift assets are executed by TRANSCOM and that C2 is exercised through TACC. Subsequently, TACC is

responsible for worldwide planning and execution of TRANSCOM's priorities. TRANSCOM, being a functional command, satisfies requirements across multiple AORs and thus maintains central control (Figure 9). However if the supporting commander, in this case TRANSCOM, is unable to fulfill the needs of the supported commanders then TRANSCOM must notify the establishing authority who in this case is the Secretary of Defense (Joint Chiefs of Staff, 2009:II-3).

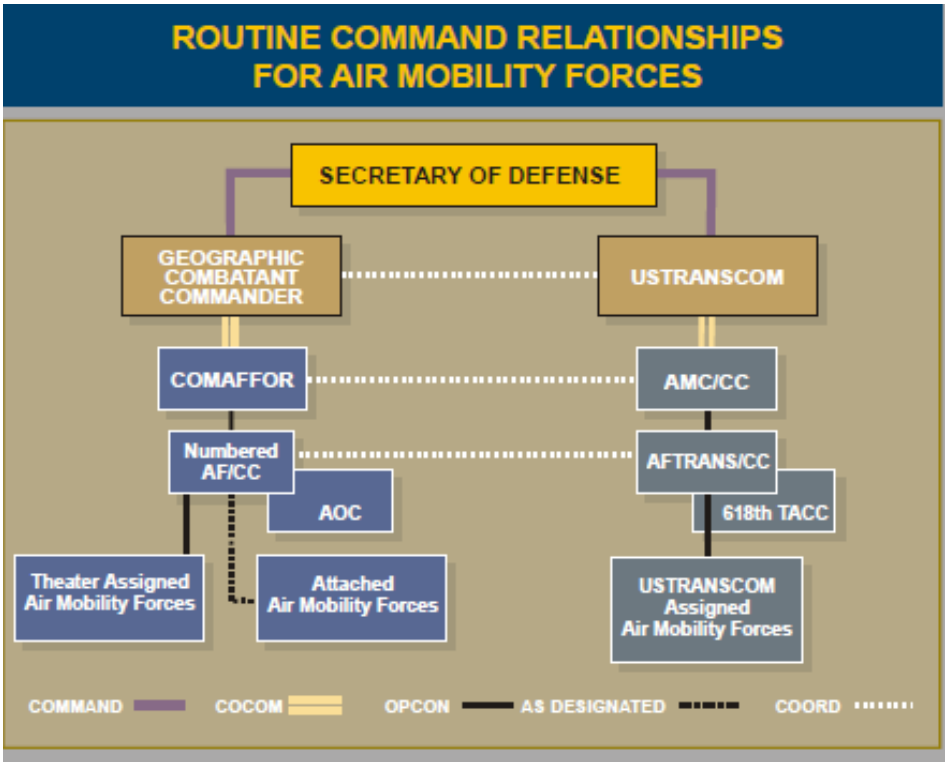

Figure 9: Routine Command Relationship for Air Mobility Forces (Joint Chiefs of Staff, 2009:II-6)

Whereas, intratheater air mobility operations are those mobility operations that remain within a specific theater and are "normally scheduled and controlled by the theater AOC" (Joint Chiefs of Staff, 2009:II-8). Then individual COMAFFOR delegates execution and the C2 to an AMD. The AMD consists of an air mobility control team,

airlift control team, air refueling control team and an aeromedical evacuation team. The AMD is responsible for integration and directing the execution to support the individual JFC objectives (Joint Chiefs of Staff, 2009: xii). The focus of the AMD is to coordinate and prioritize the phasing of intertheater and intratheater mobility. Likewise, "the AMD has vast theater expertise and familiarity and is best able to assess theater requirements, allocate forces to meet those requirements, and when needed seek TRANSCOM augmentation" (Joint Chiefs of Staff, 2009:1-10). The potential for TRANSCOM augmentation requires a constant interface and relationship between the AMD and TACC (Figure 10). Often times in augmentation, TRANSCOM will maintain OPCON of augmentation forces to a specific AOR. Similarly, the AMD must also integrate with the other divisions in the AOC to ensure air mobility missions are deconflicted, appropriately tasked on the ATO, and part of the JFC operational strategy.

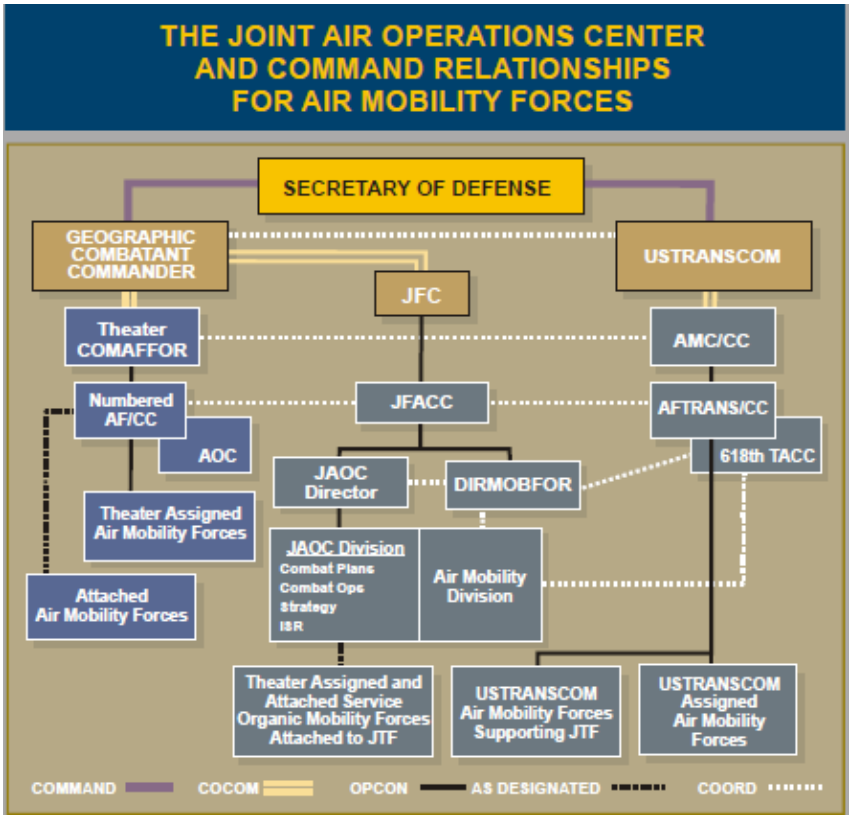

Figure 10: Joint Operations Center and Command Relationship for Air Mobility Forces

(Joint Chiefs of Staff, 2009: II-9)

Overall air mobility assets are highly limited in number but also heavily instrumental in war operations and logistics. Therefore, it is logical that air mobility command and control should be tightly tied to the JFC's priorities and requirements in order to achieve the national objectives and support the directed OPLANs. Ultimately, joint doctrine delineates air mobility as the cornerstone of global force projection for the DOD.

Air Force Doctrine

General Moseley eloquently stated, "we must understand and apply our doctrine in order to succeed in current and future challenges" (Department of the Air Force,

2011:4). Previously the Air Force service doctrine on air mobility was contained in Air Force Doctrine Document AFDD 2-6. However in an attempt to transform and become more joint, the Air Force renumbered their publications in June 2011 in order to reflect the joint publication construct. Hence, the newest service doctrine is AFDD 3-0, *Air Mobility Operations.*

AFDD 3-0, just like JP 3-17, establishes the following premise for air mobility. "Effective integration of intertheater and intratheater air mobility operations is critical to efficient and timely air mobility support to the warfighter" (Department of the Air Force, 2011:2). The success of air power resides in five key principles of war: mass, maneuver, economy of force, security and surprise. Similar to joint doctrine, AFDD amplifies that the benchmark for any operation has to be centralized control and decentralized execution. As a result, the 18th Air Force commander acts as the air mobility commander on behalf of TRANSCOM. The 18th AF commander executes their control through the TACC. However, the individual theater JFACC's maintain their mobility C2 through their respective AMDs. Air Force doctrine reiterates that separate but integrated command structures are crucial to control over global and regional mobility operations which ultimately serve the regional commanders.

AFDD 3-0 establishes the following AMD responsibilities (Department of the Air Force, 2011: 23):

- Integrate the execution of theater and USTRANSCOM-assigned air mobility forces operating in the AOR/JOA in support of the JFC requirements/ objectives.
- Manage the flow of theater and USTRANSCOM-assigned air mobility assets in support of JFC objectives.
- Coordinate air mobility support for air mobility requirements identified and validated by the requirements and control authority.

- Participate in the air and space strategy creation, planning, and execution process and coordinate with the combat plans division to ensure air mobility operations are incorporated in the ATO.
- Ensure air mobility operations are visible in the AMC standard C2 structure and reflected in the ATO/airspace control order (ACO) within OPSEC constraints.
- Monitor the current threat situation and ensure intratheater and intertheater missions are appropriately briefed.
- Identify ISR requirements in support of air mobility operations.
- Identify IO requirements to support the air mobility mission.
- Maintain information exchange with the 18 AF TACC and AMOCC (if established) to support air mobility operations into the AOR/JOA to include the passage of special

Interestingly, the doctrine above establishes AMD as a manager, integrator, and coordinator of not only theater controlled assets, but also TRANSCOM assigned missions. Air Force doctrine acknowledges TACC as an inherently robust global command and control operations system but it clearly gives priority of theater control to that respective JFACC. Lastly, with regard to theater operations planning, Air Force doctrine only lists three organizations responsible for theater planning, the Air Mobility Operations Control Center, the contingency response element, and the individual AOC. Ironically, AFDD 3-0 never directly discusses TACC in any of the regional planning processes. In fact, doctrine establishes that the DIRMOBFOR and the respective AMD planners serve as the principle advisors and assistants to the JFACC for future and contingency planning. Likewise it states, "it is the job of the AMD to ensure all intratheater and intertheater air mobility missions are integrated into the ATO" (Department of the Air Force, 2011:74-76). Ultimately, Air Force doctrine dictates some very clear guidance for the regional AMDs but is largely ambiguous on the role of the TACC. In fact as stated above, the individual AMD has more theater responsibility for both intratheater and intertheater lift than TACC does.

Current Air Mobility Command and Control Structure

Not only should one understand the doctrine, but to understand the problem one must first understand some of the background surrounding that of the AMDs and TACC. Each regional AMD is attached to the Air Force service component supporting the geographic combatant commanders (Figure 11). For instance, the 601st AOC/AMD of 1st Air Force supports the AFNORTH commander who in turn directly supports the combatant commander of NORTHCOM. While most AMDs support a combatant commander, this is not the case for all AMDs. For example, the 607th AOC/AMD supports the USFK, which is a four star sub-unified commander under PACOM. The 607th AMD is located in Korea and directly supports USFK through 7th Air Force. All the other AMDs support their GCCs and are listed below. In totality, the individual AMDs have only roughly 200 personnel assigned across all AMDs to include the largest 609th AOC/AMD with 85 people presently assigned (609th AOC/AMD, 2013).

601st AOC/AMD- AFNORTH—Tyndal AFB, FL--NORTHCOM

603rd AOC/AMD- USAFE— Ramstein AB, GE--EUCOM/AFRICOM

607th AOC/AMD-7th AF—Osan AB, Korea--USFK

609th AOC/AMD-AFCENT—Al Udeid AB, Qatar--CENTCOM

612th AOC/AMD-AFSOUTH—Davis Monthan AFB, AZ--SOUTHCOM

613th AOC/AMD-PACAF—JB Pearl Harbor-Hickam, HI—PACOM

618th AOC/TACC—Scott AFB, IL—TRANSCOM

Figure 11: Geographic COCOMs
(Defense Procurement and Acquisition Policy, 2012)

The last piece of the mobility command and control enterprise is the TACC located under 18th Air Force. TACC is not just a division of the AOC like the AMD but is an entire AOC dedicated to mobility. TRANSCOM is the DOD gatekeeper of all things transportation. The 18th Air Force globally supports all the COCOMs under the oversight of TRANSCOM as the functional COCOM charged with executing the DOD transportation requirements on land, air and sea. In fact, TACC's mission is to act as "the global air and space operations center responsible for centralized command and control of Air Force and commercial air mobility assets, 24 hours a day, 7 days a week" (618th Air and Space Operations, 2012).

TACC currently has nearly 700 personnel assigned to eight different divisions. These personnel are a mix of active duty Airmen, Reserve, Air National Guard, civilian and contractors. These personnel routinely plan, direct and employ a fleet of 1,300

mobility aircraft (618th Tanker Airlift Control Center, 2009). Pre-September 11th, 2001, TACC operations levels ran at approximately 250 to 260 sorties a day. In a post 9/11 world operations remain steady at about 400 to 500 sorties a day. Interestingly, even today over 60% of all sorties in the CENTCOM area of responsibility are not combat sorties but rather mobility sorties (Tirpack, 2003).

One of TACC's challenges is it is functional AOC and not a traditional AOC. A traditional AOC has five divisions, but TACC has eight support areas: current operations, command and control, logistics operations, aerial port operations, aeromedical evacuation, flight planning, diplomatic clearances, and weather (Joint Chiefs of Staff, 2009:GL-16). These support areas tend to be focused on day to day operations and have limited long range focus. For example, where a traditional AOC has a Strategy division, TACC does not. This lack of standard AOC divisions also can create some confusion when interfacing with traditional AOCs and it also can lead to a day to day focus versus long range strategy.

Similarly, another challenge is the TACC created a unique division called the Theater Direct Delivery (TDD) cell to be responsible for the direct coordination of certain theater missions. Ironically, while the particular theater, CENTCOM for example, does not have OPCON over certain airlift assets, the TDD under the direction of the regional AMD executes these TDD missions.

Delphi Study Review

The last portion of this literature review is an examination of the Delphi technique; which is the basic research method used in this study. The Delphi technique

was originally named after the ancient Greek oracle at Delphi which gave prophecies (Yousaf, 2007:1). Olaf Helmer and his fellow associates from the RAND corporation devised the Delphi method in the 1950s. The first Delphi study was shrouded in secrecy as part of the DOD's research on highly classified programs like the "estimation of the probable effects of a massive bombing on the United States" (Linestone and Turnoff, 2002:617). The initial Delphi's were designed to gain a consensus of military experts, without those members ever knowing who the other contributing members were. By the 1960s, the method was declassified and researchers started using the technique for corporate forecasting for both human services and industry (Yousaf, 2007:1).

Presently, the Delphi technique has been used in a variety of research applications, contexts and environments from technical forecasts to inventive planning, with the intent to gain a consensus. The Delphi technique is particularly useful in two areas today. The first is in the use of surveys to provide input data for social-science cases where data is difficult or too costly to acquire. The second area is the systematic process of gathering the information from a panel of experts or "advice community" on a topic which has nonexistent data (Linestone and Turnoff, 2002:617).

This research utilizes a panel of experts to obtain data on a topic that would otherwise not be available. The reason why the Delphi method is so useful is because "'two heads are better than one,' or more generally, 'n- heads are better than one'" (Dalkey and Rourke, 1972:6). Additionally, this particular consolidation research is suited for the Delphi method simply because the "problem does not lend itself to precise analytical techniques but can benefit from subjective judgments on a collective basis" (Yousaf, 2007:4). Similarly, the Delphi substitutes for face-to-face group interaction

because it is challenging to get all these senior leaders in one location at the same time. Also the level of disagreements and diverse backgrounds make it challenging to conduct the research in a true group forum. Lastly, the clearly defined military rank structure makes it problematic to reach a group consensus without a hierarchical pattern developing. The Delphi allows everyone to freely express their opinions ensuring both open communication and anonymity. Ultimately, the Delphi method is perfect for this research because it is a flexible and iterative study which collects and distills anonymous judgments of experts on a complex issue that previously has had incomplete or absent information (Skulmoski et al., 2007).

Whether to consolidate AMDs and TACC is a question that has many difficult angles and connotations. Given the complex nature of the question, how can one accurately assess the value and forecasted demand for both organizations when they are similar in some respects yet provide uniquely tailored services based on their region? Due to these numerous issues the researcher used the Delphi technique to examine the potential positives and negatives of consolidation. In this study, the researcher has little existing quantitative data to study and compare. As discussed above, the Delphi method is an incredible subjective model that researchers can use when they "lack sufficient or appropriate data, we must resort to forecast methods that are subjective or qualitative in nature" (Fitzsimmons and Fitzsimmons., 2011:254). Since there is no previous research or data on the topic of AMD consolidation, the researcher must glean this data and information from the most reliable sources available. That source is an expert panel of SLs. The Delphi method is most successfully employed when "the problem does not

lend itself to precise analytical techniques but can benefit from the subjective judgments on a collective basis" (Linestone and Turnoff, 2002:6).

Also given numerous constraints, it was not financially or physically feasible to bring all the Air Force SLs together in a single conference to have a candid face-to-face exchange of information on consolidation. Additionally, the intent of this Delphi study was to bring together the knowledge and opinions of SLs from different Air Force backgrounds to ascertain their perceptions on the MAF C2 enterprise. For example, the study allowed experts from both the combat air forces and mobility air forces to come together and communicate on a controversial topic and ensure anonymity for all members involved. Historically, the combat air force officers and mobility air force officers have organizational differences on how they think the Air Force should employ the MAF C2 enterprise.

Literature Conclusion

As one can see from this literature review, there is a long lineage from the beginning of air mobility command and control in World War II to the present day TACC. This review was intended to provide an initial understanding of the rise of air mobility C2 through the past century. It highlights the key developments and issues of the current mobility command and control enterprise. The review finally wrapped up with an overview of the current mobility doctrine and a synopsis of the current air mobility command and control structure in the Air Force. Interestingly, the historical challenges which faced Airmen in the early 1920s are not far removed from the same issues confronting the Air Force today. Even over the past century, our country's finest and brightest leaders have not solved that C2 conundrum and struck an optimal balance

between consolidation and theater C2. Rather, the leaders of today's Air Force still struggle with that same challenge.

III. Methodology

"It takes two of us to create a truth, one to utter it and one to understand it"
Kahlil Gibran

The Study

The Delphi study conducted in this research reflects Skulmoski's three round "typical" Delphi process for graduate students (Figure 12). He detailed that there is not a true "typical" Delphi study because each one is tailored according to individual circumstances and research questions. However historically across the spectrum of topics and research, a three round Delphi iteration has shown to be the most successful in balancing the responsiveness of the panel and the requirements of the researcher. The reason is that as the number of rounds increase and so too does the effort required by Delphi members, one often sees a decrease in the response rates. (Skulmoski, and Hartman, 2002:11)

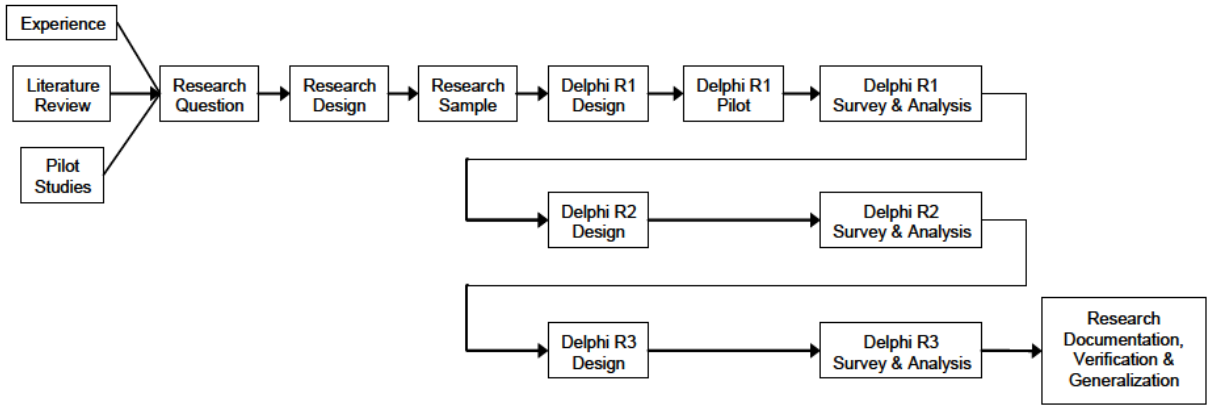

Figure 12: Delphi Study Three Round Process (Skulmoski and Hartman, 2002:3)

Skulmoski's Three Round Delphi Process

1. Develop the Research Question
2. Design the Research
3. Research Sample
4. Develop Delphi Round One Questionnaire
5. Delphi Pilot Study
6. Release and Analyze Round One Questionnaire
7. Develop Round Two Questionnaire
8. Release and Analyze Round Two Questionnaire
9. Develop Round Three Questionnaire
10. Release and Analyze Round Three Questionnaire
11. Verify, Generalize, and Document Results

Pfeiffer (1968) further outlines the three basic steps of the Delphi process as explained in Yoursaf's 2007 article (Yoursaf: 2007:3).

1. The first questionnaire is sent to the panel of experts may ask for a list of opinions involving experiences and judgments, a list of predictions, and a list of recommended activities.
2. On the second round, a copy of the collective list is sent to each expert and the expert is asked to rate or evaluate each item by some criterion of importance.
3. The third questionnaire includes the list, the ratings indicated, and the consensus, if any. The experts are asked to either revise their opinions or discuss their reasons for not coming to consensus with the group.

Likert scale

Within this Delphi study the Likert scale was used to measure the panel's responses. The Likert scale is a psychometric scale often used in questionnaires. It was originally developed by the psychologist Rensis Likert as a bipolar scaling method to measure either positive or negatives of a response. It allows an individual to rate their level of agreement or disagreement with a simple statement (Figure 13). Researchers have found this method is "quick, easy to comprehend, and psychologically comforting"

for participants to perform which results in higher return rates on questionnaires (Scheibe et al., 2002:267).

Rating	Meaning
1	Strongly Agree
2	Agree
3	Undecided
4	Disagree
5	Strongly Disagree

Figure 13: Researcher's Likert Rating Scale

Kendall's W

Another component used in this research was the Kendall's coefficient of concordance, also referred to as Kendall's W. The Kendall's W was developed by Dr. Kendall in the 1930s to assess agreement between raters. The Kendall's W uses a least squares solution to measure current unanimity between solutions. Perfect concordance of all associated individual rankings would be rated as a "1". Whereas, a W value of "0" states that all rankings are completely random with no similarity. Using the Kendall's W values in a Delphi study allows a researcher the ability to statistically determine whether consensus is reached (Figure 1). Then the researcher can determine if consensus increases during subsequent Delphi rounds and what is the overall strength of the panel's consensus (Schmidt, 1997:765). The Kendall's W equation is listed in Equation 1. "n" is the total number of rankings and "m" is the total number of Delphi panel members (Kendall and Babington, 1939:276):

$$W = \frac{12S}{m^2(n^3 - n)} \qquad (1)$$

With S defined as the squared deviations (Equation 2):

$$S = \sum_{i=1}^{n} (R_i - \bar{R})^2 \qquad (2)$$

R bar is defined by the mean value (Equation 3):

$$\bar{R} = \frac{1}{2} m(n+1) \qquad (3)$$

Finally, R_i is the given rank by each individual Delphi panel member Equation 4): (Dodge, 154: 2003)

$$R_i = \sum_{j=1}^{m} r_{i,j} \qquad (4)$$

Interpretation of Kendall's *W*.		
W	Interpretation	Confidence in Ranks
.1	Very weak agreement	None
.3	Weak agreement	Low
.5	Moderate agreement	Fair
.7	Strong agreement	High
.9	Unusually strong agreement	Very High

Figure 14: Interpretation of Kendall's W

(Schmidt, 1997: 767)

Delphi Study and Mobility C2

A noted problem in this research is to first quantify, then articulate and finally compare the success or effects of both individual organizations independently and the consolidation of the AMD and TACC. The second issue is how to forecast and assess the tangible achievements, if any, of consolidating both organizations. That issue is

particularly difficult given both organizations do not directly compare in their scale and scope of mission. It is difficult to equate or quantify the missions and impact of the regional AMDs directly to that of TACC. For example the TACC executes on average up to 700 missions a day, while the AMD in the Pacific only executes approximately 30 daily missions. The responsibility and scope of both organizations are not on par, nor should they be the same, since they focus on different roles and aspects within the MAF C2 enterprise.

The Delphi study was executed in several phases. The first phase was subject exploration and discussion through the expert panel. Key issues that are pertinent to the research are identified. While focusing on a specific topic, the potential AMD and TACC consolidation, the expert panel was asked to collectively brainstorm areas where a consolidation would be beneficial and where it would negatively affect the C2 enterprise. In this phase, the panel members were asked to unleash their uninhibited creative thought and explore concepts related to the topic. Then, the data was interpreted to correlate trends between ideas and concepts affecting both the positives and negatives of consolidation. A critical piece in the study was determining which panel thoughts were fundamentally comparable and can be consolidated. During this phase, caution was needed to not limit the panel's creativity but tailor their thoughts into a coherent data stream for further group analysis. Channeling the group creativity enabled the individual panel members to think and consider ideas outside their own individual thoughts. It also freed them from being prisoner to their own basic image of reality (Linestone and Turnoff, 2002:17).

The second phase provided the panel with consolidated data from round one. The panel then specified their second phase preferences based on the panel's round one provided forecast and ideas. The goal of the second phase was to narrow the panel's focus and ascertain where the panel may have reached a consensus. Likewise, areas where the panel did not universally agree were highlighted. As mentioned earlier, the intent was to bring panel members from a variety of backgrounds to understand the idea extremes. Because of the different backgrounds, there are potential disagreements and conflicting ideologies. Conversely, if panel members of different backgrounds agree in one area, one can assume that a forecast area is valid.

The bulk of the work was not in the consensus building but in the understanding and adjudication of the conflicting opinions. The third phase in the Delphi study was the exploration and comprehension of the underlying rationale for those differences. Particularly in this area, careful attention is needed not to unduly influence or provide preconceptions on the issue. Rather, the variations of opinions are heard and understood. In some cases when approached, some panel member may modify their stance and agree with the group, but in other situations the member may have well founded reasons to be unique. It was just as imperative to understand the rationale of the group "outliers" as it was to reach a consensus on the data.

The final segment of the Delphi study was the evaluation of the data. Here, the quantitative information was interpreted and outcomes were ultimately translated into the written report. The interpretation of the final data was critical to accurately articulating the opinion and forecast of the panel. Using this panel's projection or opinion, a recommendation to make an informed judgment based on the panel's collective

consensus is delivered to the appropriate organizational leaders. This allows the leader to make a choice based on an objective consensus of senior experts, instead of just relying a gut feeling or personal whim.

Ultimately, the intent of this Delphi study is to analyze and forecast the potential benefits and risks associated with a potential merger of the AMDs and TACC by identifying, selecting and asking a panel of those with the expertise to address the issues. The Delphi method can harness the experience and relevance of the senior panel to raise numerous angles or concerns that may not have been previously explored or examined. Likewise, the study can also highlight certain areas where there may not be agreement and recommend further focus studies. These areas of disagreement may also underscore differences in cultural backgrounds. For instance, it may highlight the unique viewpoints of how combat air force officers and mobility air force officers view the MAF C2 enterprise. Understanding these different opinions can be a powerful tool in addressing the needs of the combatant commander customer and his or her delegated JFACC.

Using the data from the Delphi study, a baseline forecast is provided on how to proceed in the future. As mentioned earlier, fiscal constraints continually drive changes in the Air Force, particularly among manpower. However, the more proactively informed the Air Force leadership can be the more successful they will be in making good choices when balancing fiscal reductions and manpower consolidations. Hard choices will have to be made and undoubtedly cuts will happen. By utilizing the consensus ascertained by the Delphi study, the leaders can make informed decisions about what crucial areas to emphasize and preserve given a future drawdown. It is through the data of the Delphi study that a leader can be confident in consolidating or

preserving areas because they are an important part of our MAF C2 enterprise. Rather than be arbitrary in decisions, the leader can be assured that they share the opinions of the expert panel of SLs.

Unequivocally, the definition of consensus is difficult to quantify. One view is "the group opinion is defined as a statistical average of the final opinions of the individual members, with the opinion of every group member reflected in the final group response" (Yousaf, 2007:4). Scheibe identifies "consensus is assumed to have been achieved when a certain percentage of the votes fall within a prescribed range—for example, when the interquartile range is no larger than 2-units on a 10-unit scale" (Scheibe, 2002:271). Conversely, Hsu and Sandford (2007:4) stated "the major statistics used in Delphi studies are measures of central tendency (means, median, and mode) and level of dispersion (standard deviation and inter-quartile range) in order to present information concerning the collective judgments of respondents." Ultimately, the panel's statistical median for the Likert sections and the Kendall's W was used in this study to define the group consensus.

Assumptions

Some critical assumptions and limitations to constrain the data were made. The assumptions and limitations are an evolving process and at this time not all encompassing.

The following assumptions were made:

1. First, that there is no establishment of any new geographic COCOMs or that there is not any significant changes to the airlift request system.

2. This research assumes that the majority of SOCOM and Air Force Special Operations Command missions are internally tasked and executed.
3. That one regional AMD is not more inherently effective than another and they are largely equal in performance.
4. The researcher did not unduly influence the panel members and was fundamentally neutral in the question formation and phraseology.
5. The Air Force has the ability to selectively choose programs to eliminate without undue DOD forced financial or personnel cuts.
6. Lastly, the assumption is the world-wide DOD command structure does not significantly change. For example, if the United States goes to war tomorrow with North Korea that the DOD will not completely reorganize the Unified Command Plan which would affect the Air Force mobility C2 structure.

Limitations

A Delphi study and this research are not without limitations. Linestone and Turoff (1976) highlight five common reasons for Delphi failure.

1. Imposing of monitor views or preconceptions of a problem upon the panel.
2. Assuming a Delphi can be a surrogate for other human communications.
3. The researcher uses poor techniques of summarizing and presenting group responses and ensuring common interpretations.
4. Ignoring and not investigating disagreement so dissenters drop out and an artificial consensus is obtained.
5. Understanding the demanding nature of a Delphi and properly compensate members.

The list above is not all inconclusive of Delphi limitations. Similarly, a researcher must understand that this panel judgment is the opinion of a select group of 20 members and

still may not be representative of the entire Air Force opinion. There is an inherent tendency within a Delphi to reach consensus and minimize extreme positions, thereby reaching a middle-of-the-road agreement. One of the most significant flaws of a Delphi can be the inability of an individual panel member to see the larger vision in which they are involved. This problem occurs when members are too close to the problem that they cannot see the future (Yousaf, 2007:5). Maintaining a balance between relevant panel members and those consumed by the problem can be a challenge to obtain. Finally, everyone must acknowledge that the data produced from a Delphi study is opinion-based and cannot be assumed to be irrefutable fact.

In all of these mentioned areas, the researcher worked diligently to mitigate and minimize these inherent Delphi limitations and was always cognizant of the issues within a Delphi.

IV. Results and Analysis

"It requires a very unusual mind to undertake the analysis of the obvious."
- Alfred North Whitehead

Delphi Panel Demographics and Participation

The foundational principle in any Delphi study is clearly the panel members. Skulmoski stated that "selecting research participants is a critical component of Delphi research since it is their expert opinions upon which the output of the Delphi is based" (Skulmoski, 2007:3). The panel is the genesis of the data and a critical source of the research information. Without a strong panel, both from a level of participation but also equally important from an experience background, the research data is not valid. Additionally, Gordon claims that the "key to a successful Delphi study lies in the selection of participants" (Gordon, 1994:6)

Due to some academic study constraints, this Delphi study comprised of less than 20 members. In this particular research case, the panel comprised a unique blend of, both past and present, AMD leadership, AMC/TACC leadership and CAF/JFACCs (Table 1). All the individuals are senior leaders and are labeled as an expert within their specific community.

Table 1: Delphi Survey Demographics and Participation

	AMC/TACC	AMD	CAF/JFACC	Total
Baseline	6	6	8	20
Round 1 Participation	6	6	5	17
Round 2 Participation	6	6	4	16
Round 3 Participation	8	5	4	16

One area of concern for the researcher is to maintain an appropriate balance of a panel member's recent familiarity on the issue compared with their depth of experience.

It is important not to select a member that has a high level of experience but has zero recency on the issue. Likewise the researcher must assess if a panel member is current on the issue but lacks an appropriate level of experience to be a valid member. Subsequently, the spectrum of qualifications for this Delphi range from a Lieutenant Colonel to a four-star General, with the preponderance of members being Colonels. Ultimately, the researcher selected the panel members based off Skulmoski participant criteria. Skulmoski concludes participants should require the following four prerequisites to be considered experts: knowledge and experience with the issues investigated, capacity and willingness to participate, sufficient time to participate, and lastly effective communication skills (Skulmoski et al., 2007:3).

The panel's participation throughout the study was noteworthy. Typically researchers reported 40% to 75% participation rates with Delphi studies (Gordon, 1994:10). However, after three rounds, this research concluded with an overall 92.45% participation rate (Table 2). Unfortunately, the largest group that experienced a gradual decline in response participation was the CAF/JFACCs. Nevertheless, the overall contribution and input from the entire panel was absolutely remarkable when compared to traditional participation rates.

Table 2: Delphi Questionnaire Response Rates

Questionnaire	Survey	Returned	%
Round 1	20	17	85%
Round 2	17	16	94.10%
Round 3	16	16	100%

Pilot Study

Before conducting the Delphi study on the designated SL panel a pilot test panel to refine the questions and gauge the responses was utilized. Skulmoski recommends a pilot study because "it improves comprehension, and to work any procedural problems," particularly for inexperienced researchers who may be overly ambitious regarding the scope of their research (Skulmoski, et al. 2007:4). The pilot test panel also provided feedback directly to the researcher on the potential nuances of each question. The researcher selected 13 MAF participants to partake in the pilot study. While these individuals did not meet the criteria of a SL, the researcher choose these members because they were all recent in their MAF experiences.

In round one of the pilot Delphi study, the researcher provided all 13 MAF members with the same draft questionnaire for the SL panel. The pilot panel reviewed the questions and provided their answers. Nine members out of 13 members responded for a participation rate of 69%. Likewise, the panel members in personal conversations provided detailed feedback on the phraseology and presentation of the questions. As a result, the researcher tweaked the formatting of several of the questions.

After approximately 2 weeks, the researcher provided the panel round two of the consolidated questions. This time only seven out the thirteen members completed the questionnaire for a response rate of 53%. Round two was the most valuable round though, with the participants providing not only their responses but detailed feedback on their perception and observations on the questionnaire. One of the most significant outcomes of round two was the realization that the Likert scaling of the questions provided a quantifiable level of impact for each question, but it lacked an understanding

of the importance of each question. As a result, an additional question was added to each section. Now each question would have a Likert scale, but it would also have a rank prioritization. The combination of those two questions would provide both importance and impact for each focus area.

Unfortunately, due to research time constraints round three was never formally pilot tested with the entire panel. Rather, round three was discussed with several members. Instead two panel members reviewed the round three questionnaire and provided detailed feedback.

Overall, the pilot study proved highly beneficial in the development of the final SL panel questionnaires. It also was instrumental in eliminating the researcher's bias. The direct feedback provided by the participants allowed a thorough reexamination of each questionnaire. Round one did not fundamentally change as a result of the pilot test. However, the observations observed in round two led to dramatic modifications for the SL round two. Ultimately, the pilot test was clearly an influential tool to pre-test the actual SL questionnaire.

Round One

In round one, each SL panel member was provided with an individual questionnaire (Appendix A) via email and asked if they would like to participate. If they agreed to participate in the confidential study they had 16 days to return the questionnaire to the researcher. Each questionnaire asked the following five questions.

1. What tasks and duties do you believe the TACC/618th AOC do inherently well?
2. What tasks and duties do you believe the geographic AMDs do inherently well?
3. List or describe the potential positives or ancillary advantages a centralized functional AMD under TACC would provide?

4. List or describe the potential negatives or unintended consequences of a centralized functional AMD under TACC?
5. Do you believe a centralized AMD would be more efficient, effective, neither or a combination of both? Please Expound.

By design the round one Delphi study contained open ended concepts to allow the participants to explain their individual ideas and theories. The SLs responded with numerous different concepts and ideas for each question. However, many of these positions were similar to others in both meaning and significance. Therefore, the researcher interpreted the responses and streamlined the responses into a smaller list of no more than 10 areas for each question. By far the most difficult portion of the Delphi study was discerning which responses were written different but had the same intention and which responses were conceptually unique.

Round Two

Using the panel's inputs from round one the researcher developed a second questionnaire. The panel was presented the opportunity to rate the odd numbered responses from the first questionnaire by level of importance utilizing a five-point Likert scale, where 5=Strongly Agree, 4=Agree, 3=Undecided, 2=Disagree, and 1=Strongly Disagree. For the even numbered responses, the panel was asked to provide their rank order from 1 to n on the priority level of each round one generated idea. A list shown next contains a summary of the round two questions. Appendix B contains the entire responses.

1. In round one I asked the panel what tasks and duties do you believe the TACC/618th AOC does inherently well and the panel provided the following key areas. Please utilize the Likert Scale to measure whether you agree or disagree with the following statements.
2. Additionally, please now rank order the list below of tasks and duties you believe the TACC/618th AOC does inherently well from 1 to 10. With 1 being what you feel is the most important task the TACC/618th AOC does and 10 being the least important.
3. In round one I asked the panel what tasks and duties do you believe the geographic AMDs do inherently well and the panel provided the following key areas. Please utilize the Likert Scale to measure whether you agree or disagree with the following statements.
4. Additionally, please now rank order the list below with what you feel is the most important task the geographic AMDs do inherently well from 1 to 9. With 1 being what you feel is the most important task the AMDs do and 9 being the least important.
5. In round one I asked the panel to list the potential positives or ancillary advantages a centralized functional AMD within TACC could provide and you provided the following list. Please utilize the Likert Scale to gauge whether you agree or disagree with the following statements.
6. Additionally, please now rank order the list of the potential positives or ancillary advantages a centralized functional AMD within TACC could provide below from 1 to 8. With 1 being what you feel is the most important task is and 8 being the least important.
7. In round one I asked the panel to list the potential negatives or unintended consequences of a centralized functional AMD under TACC and you provided the following list. Please utilize the Likert Scale to gauge whether you agree or disagree with the following statements.
8. Additionally, please now rank order the list of the potential negatives or unintended consequences of a centralized functional AMD under TACC below from 1 to 10. With 1 being what you feel is the most important task is and 10 being the least important.
9. Lastly, please address the following question from the perspective if you are, were or will be a JFACC. What do you think the most important duties or tasks a MAF C2 enterprise (regardless of service provider, TACC or AMD) must bring to the fight in your AOR? Preferably this would be your top 2 to 3 no fail items specific to the MAF C2 from your commander's intent.

Round Three

In round three, the results from the round two questionnaires were summarized and analyzed. Each individual's data responses were compared to that of the rest of the panel. Standard deviation, range, mean and mode were identified for each question and sub area. Using this derived information, personal responses of each panel members as compared to the rest of the panel was provided to the individual panel members. For example on question one, panel member one responded with a Likert ranking of a 5, with the panel average of a 4.6 and a standard deviation of a .51. The panel's round two response range was from a 4 to a 5 (Figure 14). The researcher clearly articulated to the individual panel members that they were under no obligation to change their answer. However, round three afforded the participants the opportunity to not only view the group's responses but allow them to re-rank or re-number their individual responses after seeing the groups. In both rounds the researcher asked the exact same questions.

	New Rating or Blank for Previous	Name	Panel Avg	Std Dev	Range
TACC provides global visibility and strategic tracking of aircraft and movements.	____	5	4.6	0.51	4 to 5
TACC leverages worldwide ground support capabilities and the AMC enroute structure.	____	4	4.4	0.51	4 to 5
TACC executes global aeromedical evacuation across AOR borders well.	____	5	4.4	0.65	3 to 5
TACC provides centralized prioritization of MAF assets universally across GCC lines of responsibility.	____	4	3.6	1.09	2 to 5
TACC provides 24/7/365 crew and aircraft support via flight plans, dips & integrated flight management.	____	4	4.4	0.65	3 to 5
TACC manages the global allocation of MAF resources to requirements and timely reallocates.	____	5	3.8	1.05	2 to 5
TACC measures and manages the activation of AFRC and ANG assets.	____	4	3.4	1.09	1 to 5
TACC maximizes the overall utility and benefit of intertheater assets.	____	5	4.1	1.23	1 to 5
TACC uniquely provides a scalable workforce capable of changes in workload, situational demands & crisis.	____	4	3.6	0.85	2 to 5
TACC orchestrates and integrates worldwide mobility maintenance capability.	____	5	4.0	0.88	2 to 5

Figure 15: Sample Round Three Questionnaire--Question One

(Appendix C)

One interesting aspect of round three was that while participants were given the option to modify their round two answers, 81% of members took that opportunity and modified at least one of their round two answers. Panel members modified 46% of their

round two responses that were statically different to the panel averages in round three, in total 111 out of 238 were modified. Interestingly, three panel members did not modify any of their answers in round three. If these three members were removed from the data set, then the number of modifications jumped to 58% for round two answer modification. This appears to indicate that while there were areas of panel disagreement that there was a significant move towards consensus from round two to round three. However, all panel member data were included in the final analysis.

The distinct areas where a participant was significantly different from the group was also highlighted in red and a question mark was provided in that specific line. The members were asked to explain why they thought their answer was unique from the group. The intent was to ascertain perspectives that remained distinctive from the average panel response. As Linestone and Turnoff (2002) stated, the original purpose of the Delphi was to obtain a reliable consensus of opinions from experts with controlled opinion feedback. Conversely, even if some areas did not achieve consensus that information was also important. This is because some of the discussion topics and questions were intended to be controversial. If the questions were not controversial then the consolidation decision would have been easy and already decided. Rather, understanding areas of discord can be equally as important as consensus.

Analysis

Round one demonstrated itself as an information gathering exercise where the participants provided a plethora of responses. Round one provided little in the degree of quantitative data to examine. However, round two and three provided some intriguing trends and changes in the data.

Question 1:

For question one, what duties and tasks they believed TACC/618th AOC does inherently well (Appendix B), the panel provided the following responses (Figure 15) on a 1 to 5 Likert Scale. As one can see, there was no change from round two to round three. With regard to consensus that the panel "strongly agrees" that TACC provides global visibility and strategic tracking and 24/7/365 crew and aircraft support. In all other areas, they consistently "agree" that TACC does all tasks well.

	Rd 2-Median	Rd 3-Median
TACC provides global visibility and strategic tracking of aircraft and movements.	5	5
TACC leverages worldwide ground support capabilities and the AMC enroute structure.	4	4
TACC executes global aeromedical evacuation across AOR borders well.	4.5	4.5
TACC provides centralized prioritization of MAF assets universally across GCC lines of responsibility.	4	4
TACC provides 24/7/365 crew and aircraft support via flight plans, dips and integrated flight management.	5	5
TACC manages the global allocation of MAF resources to requirements and timely reallocates.	4	4
TACC measures and manages the activation of AFRC and ANG assets.	4	4
TACC maximizes the overall utility and benefit of intertheater assets.	4	4
TACC uniquely provides a scalable workforce capable of changes in workload, situational demands & crisis.	4	4
TACC orchestrates and integrates worldwide mobility maintenance capability.	4	4

Figure 16: Question One Median Responses

It is important to note that while the median scores appear to show strong consensus, some areas had convincing difference of opinions. For example with regard to TACC providing centralized prioritization of MAF assets universally across GCC lines of responsibility, it is apparent that not all panel members agree (Figure 16). The panel's median answer was a 4.0, but four panel members "disagreed" that TACC provides central prioritization well, thereby driving a 1.03 standard deviation. Some other areas of weak consensus were TACC's global allocation to requirements with a median of 4.0 with a standard deviation of .98, measures and manages the activation of AFRC and ANG had a median of 4.0 with a standard deviation of 1.09, and TACC's maximizing the overall utility and benefit of intertheater assets had a median of 4.0 with a standard deviation of 1.18.

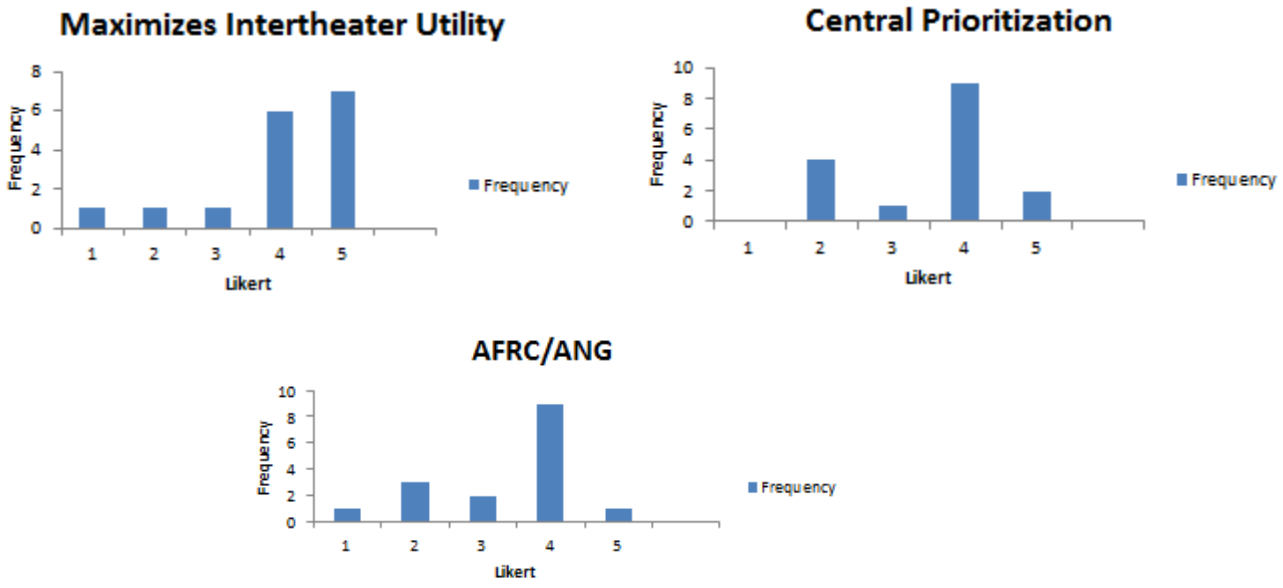

Figure 17: Question One—Sub Answers

Overall, while there was some members who dissented on question one, there was generally strong panel consensus using the median and the panel's response distribution and the limited panel outliers (Appendix D: Question 1).

Question 2:

Question two addressed the same issue as question one of what duties and tasks they believed TACC/618th AOC does inherently well, but now the panel had to rank order the responses from 1 to 10 in order of priority. There were only minor order changes from round two to round three. However, there were significant changes as the panel modified their round two answers towards consensus. As a result the panel moved from moderate agreement (W=.495) to strong agreement (W=.673) based on Kendall's concordance coefficient (W) as shown in Table 3. Therefore, there is high confidence in the priority rankings of the panel.

Table 3: Question Two-Rank Order and Kendall's W

Rank	Round 2	Round 3
1	Global Vis	Global Vis
2	Global Allocation to Requirement	Global Allocation to Requirement
3	Central Prioritization	Central Prioritization
4	IFM, Dips, FLT Management	IFM, Dips, FLT Management
5	Global AE	Ground Spt/AMC Enroute
6	Ground Spt/AMC Enroute	Global AE
7	Maximize Intertheater Utility	Maximize Intertheater Utility
8	Worldwide MX	Worldwide MX
9	AFRC and ANG measure	AFRC and ANG measure
10	Scaleable Workforce	Scaleable Workforce
	W=.495 (Moderate Agreement)	W=.673 (Strong Agreement)

Question 3:

What tasks and duties do you believe the geographic AMDs do inherently well? The panel provided the following responses on a 1 to 5 Likert Scale (Figure 17). With regard to consensus, the panel "strongly agrees" that: AMD is uniquely responsive to their individual JFACC and COCOM's priorities and requests, AMDs are able to operate in a real-time or "tighter" decision C2 loop, AMDs integrate and synchronize well with other AOC divisions, AMDs optimize organic MAF assets and capabilities to meet regional requirements, AMDs are uniquely involved in theater campaign and OPLAN planning, and finally AMDs execute and orchestrate theater specific and directed missions well. In all other areas, the panel "agree" that AMDs do all other tasks well.

	Rd 2-Median	Rd 3-Median
AMDs are uniquely responsive to their individual JFACC and COCOM's priorities and requests.	5	5
AMDs are able to operate in a real-time or a "tighter" decision command and control loop within their AOR.	5	5
AMDs integrate and synchronize with other AOC divisions to provide AOD, ATO and dynamic mission changes during execution.	5	5
AMDs optimize organic MAF assets and capabilities to meet regional requirements.	5	5
AMDs do not just focus solely on air mobility but optimize the entire theater logistical support.	4	4
AMDs are uniquely involved in the theater campaign planning processes and theater OPLANs.	5	5
AMDs execute and orchestrate theater specific and directed missions well. (For example air drop or wild fire suppression)	5	5
AMDs are instrumental in allied theater engagement, building partnerships and phase 0 shaping.	4	4
AMDs translate and coordinate well with the end users and joint customers.	4	4

Figure 18: Question Three Median Responses

Question three also had a few panel members that were mathematical outliers compared to the rankings of the rest of the panel. However, one panel member in particular chose to score five answers as two or below. As a result, this significantly altered the level of consensus when compared to the results if this members inputs were removed. Ultimately, the panel reached strong consensus in all but a single area, AMDs are instrumental in allied theater engagement building partnerships and phase 0 shaping (Figure 18). This area had a final average of 3.9, a median of 4, and a high standard deviation of 1.12 due to the wider spectrum of panel opinions.

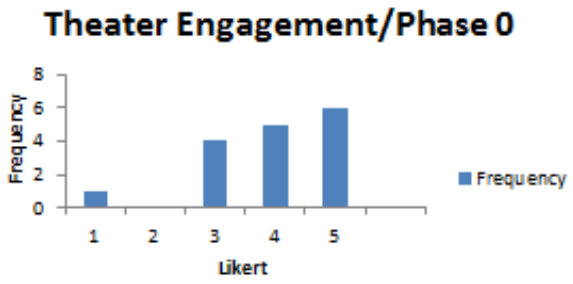

Figure 19: Question Three—Sub Answer

Question 4:

Question four referenced the identical topic as question three, but now the panel had to rank order the responses from 1 to 9 in order of priority. Additionally, there was again significant changes in individual rankings as the panel modified their round two answers, yet none of the overall rankings changed. Instead as in question two the panel moved from moderate agreement (W=.564) to strong agreement (W=.695). Again there is confidence in the accuracy of the priority rankings of the panel given the strong consensus (Table 4).

Table 4: Question Four-Rank Order and Kendall's W

Rank	Round 2	Round 3
1	JFACC/COCOM priorities	JFACC/COCOM priorities
2	Real-time or tighter C2 decision loop	Real-time or tighter C2 decision loop
3	Optimize organic MAF and capabilities	Optimize organic MAF and capabilities
4	Integrate & Synch within AOC	Integrate & Synch within AOC
5	Theater specific msns/directed msns	Theater specific msns/directed msns
6	Planning for Theater campaign/OPLANS	Planning for Theater campaign/OPLANS
7	Translate end users/joint customers	translate end users/joint customers
8	Optimize entire theater logistics support	Optimize entire theater logistics support
9	Theater engagement/phase 0/BP	Theater engagement/phase 0/BP
	W=.564 (Moderate Agreement)	**W=.695 (Strong Agreement)**

Question 5:

Question five addressed the following issue, what potential positives or ancillary advantages a centralized functional AMD within TACC would provide? The panel provided responses again on a 1 to 5 Likert Scale (Figure 19). The panel's response was far more skeptical with only two areas where they "agree" that AMD consolidation within TACC would reduce the deployed personnel or forward footprint and it would leverage a consolidated IT system. In all other areas the panel was "neutral" whether AMD consolidation would yield any advantages or value. Out of all the questions in the study, this question provided the widest range of responses with numerous members at polar opposites from 1 to 5. Cleary the panel did not reach consensus in several areas.

The AMDs consolidation within TACC…..	Rd 2-Median	Rd 3-Median
would yield efficiencies through consolidated manpower for MAF leadership and functional personnel.	3.5	3.5
would reduce the deployed personnel or forward presence footprint.	4	4
increases the continuity of operations and ensure consistent staff expertise across all mobility sets. (AE, AR, aerial delivery, mx, etc.)	3	3
would ensure a disciplined central prioritization and requirements process across all COCOMs.	3	3
increase the situational awareness and visibility on the global air mobility picture.	3	3
would synchronize strategic and tactical mission sets across COCOMs.	3	3
leverages a consolidated IT systems.	4	4
maximizes utility of all intra-theater and inter-theater MAF assets.	3	3

Figure 20: Question Five Median Responses

Once again a single individual was consistently an outlier when compared to the rest of the panel and ranked five out of nine areas different by a factor of two. As a result, this individual significantly altered the level of consensus when examining the panel's values.

With regard to consensus, overall the panel was "undecided" if consolidation would ultimately yield any positives. This lack of consensus was further exhibited by the wide spectrum of responses. For example, examine Figure 20 to see the gamut of answers. Only two areas resulted in consensus from an AMD consolidation: an increase in the continuity of operations and ensure consistent staff expertise across all mobility missions sets and it would synchronize strategic and tactical mission sets across the COCOMs. The panel appeared to differ in their opinions about whether consolidation would result in an increase in continuity in staff expertise and mission synchronization.

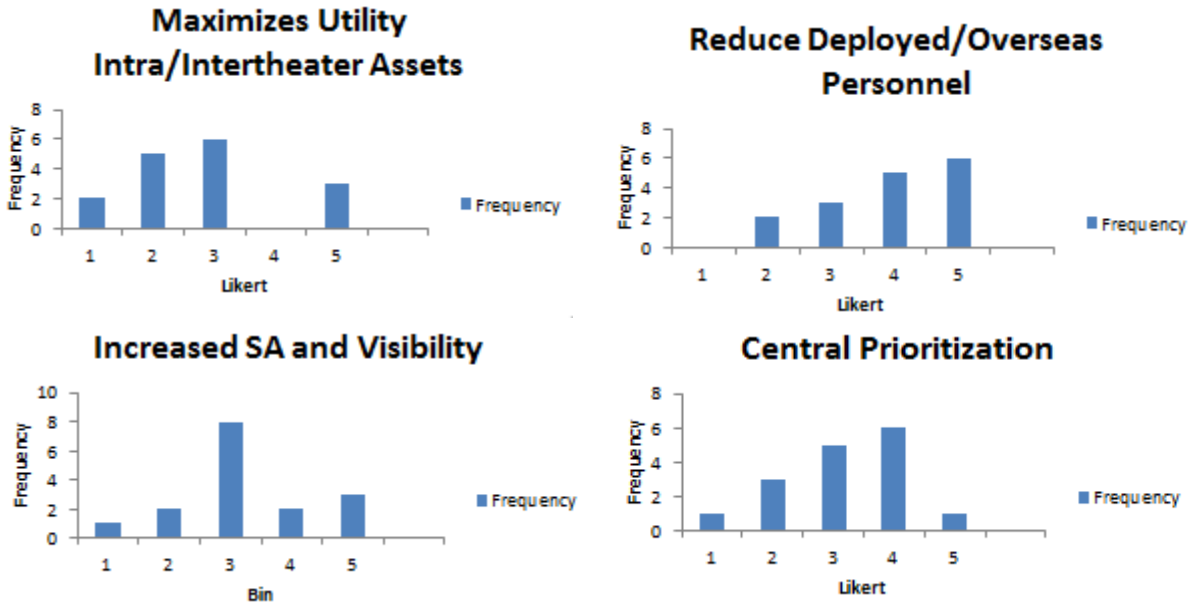

Figure 21: Question Five—Sub Answers

Question 6:

In round two, question six (the same topic as question five) elicited extremely strong opinions. The panel's task was to rank order the responses from 1 to 8. There were drastic changes in individual rankings as the panel modified their round two answers. As mentioned before, this topic was highly debated as indicated by the panel's agreement in round two being very weak agreement (W=.187) to weak agreement in round three (W=.358). Clearly, the panel was not in concurrence with the proposal or rankings of AMD consolidation advantages (Table 5).

In fact, two panel members commented on question six that they felt that there were no advantages to AMD consolidation and opted not to complete the ranking at all. These opinions amplified the discord, but also provided powerful insight as to some of those stalwart opinions weighing against AMD consolidation. Ironically, the only two areas of potential consensus from question five, leveraging a consolidated IT system and reducing the deployed personnel or forward footprint, rated last on the panel's priority.

Table 5: Question Six-Rank Order and Kendall's W

Rank	Round 2	Round 3
1	Increase continuity/staff experience	Central prioritzation system
2	Reduce deployed personnel/overseas footprint	Maximizes utility of all intra/inter theater MAF
3	Increased SA and visibility	Increased SA and visibility
4	Central prioritzation system	Increase continuity/staff experience
5	Maximizes utility of all intra/inter theater MAF	Synchronize strategic and tactical msn sets
6	Consolidated manpower	Consolidated manpower
7	Synchronize strategic and tactical msn sets	reduce deployed personnel/overseas footprint
8	Leverages consolidated IT system	Leverages consolidated IT system
	W=.187 (Very Weak Agreement)	**W=.358 (Weak Agreement)**

Question 7:

Rate the list the potential negatives or unintended consequences of a centralized functional AMD under TACC? The panel provided the following responses from 1 to 5

(Figure 21). The panel provided overwhelming consensus and "strongly agreed" that AMD consolidation would adversely reduce both face-to-face interactions and communications between other AOC divisions and would reduce AOR specific familiarity, knowledge, and relationships. In all areas the panel exhibited strong unanimity and "agree" that AMD consolidation would yield at least eight negatives.

The AMDs consolidation into TACC….	Rd 2-Median	Rd 3-Median
would reduce the face-to-face interactions and communications between MAF C2 and the other warfighting AOC divisions.	5	5
would reduce AOR specific familiarity, knowledge and relationships.	5	5
cause out of synch battle rhythms or numerous rhythms based on theater specific operations or crisis.	4	4
reduces focus and a disconnected responsiveness to a JFACC or COCOM specific requirements or issues.	4	4
de-emphasizes or reduces mobility expertise and personnel in the regional theaters, generalists vs. experts.	4	4
sub-optimizes regional requirements at the expense of other global needs.	4	4
weakens the joint concept of COCOM's authority over logistics.	4	4
negatively affects building partnership capacity and phase 0 shaping.	4	4
causes a focus loss on theater OPLANs and theater specific contingencies.	4	4
creates C2 and doctrinal conflict over a central management of the remaining theater assigned MAF assets.	4	4

Figure 22: Question Seven Median Responses

Therefore, the panel reached strong consensus in all but a single area, AMDs consolidation would negatively affect building partnership capacity and phase 0 shaping (Figure 22). This question had a final average of 3.9, a median of 4, and a high standard deviation of 1.08 due to the wider spectrum of panel opinions. Of note again though, one panel member ranked this area a 1 which conflicted with the rest of the panel's rankings. If this panel member was considered an outlier, then the rest of the panel would have reached consensus in this area. When the specific individual was specifically queried on the issue, they said "AMD simply schedules" and any organization could accomplish building partnership capacity. Unfortunately, they did not further elaborate as to the specifics of why their opinion was so unique. Overall, the panel reached consensus in all

areas with the exception of consolidation's negative affect on building partnerships and phase 0.

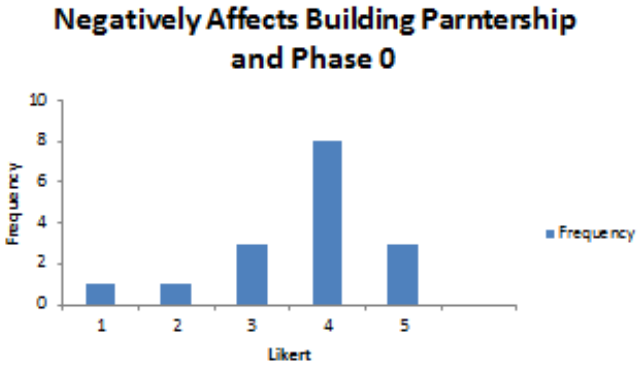

Figure 23: Question Seven—Sub Answer

Question 8:

Question eight referenced the identical topic as question seven but now the panel had to rank order the responses from 1 to 10 in order of priority. Additionally, there were some changes to the middle ranked items from round two to round three. In round two the panel displayed weak to moderate agreement (W=.406) and moved to moderate agreement (W=.561). The first three items: a reduced focus and disconnected responsiveness to the JFACC's specific requirements, reduced AOR familiarity, relationships, and knowledge, and reduced face-to-face interactions with other AOC divisions never changed from round two to round three. Likewise, the bottom three rankings did not change. However, the panel rated the middle items so closely that it was difficult to establish a perceivable difference from round two to round three. Ultimately, the researcher was relatively confident in the accuracy of the priority rankings of the panel given the moderate agreement (Table 6).

Table 6: Question Eight-Rank Order and Kendall's W

Rank	Round 2	Round 3
1	Reduced focus on JFACC specific requirements	Reduced focus on JFACC specific requirements
2	Reduces AOR familiarity, knowledge and relationships	Reduced AOR familiarity, knowledge and relationships
3	Reduced face-to-face with other AOC divisions	Reduced face-to-face with other AOC divisions
4	Out of synch battle rhythms	De-emphasis of regional mobility experience
5	De-emphasis of regional mobility experience	Sub-optimizes regional requirements for global needs
6	Sub-optimizes regional requirements for global needs	Out of synch battle rhythms
7	Loss focus on OPLANS and theater contigencies	Loss focus on OPLANS and theater contigencies
8	C2 doctrinal over centralized management of theater assets	C2 doctrinal over centralized management of theater assets
9	Weakens COCOM control over logistics	Weakens COCOM control over logistics
10	Negatively affects BP and phase 0	Negatively affects BP and phase 0
	W=.406 (Weak to Moderate Agreement)	W=.561 (Moderate Agreement)

Question 9:

Question nine was introduced in round two, due to the recommendation of one of the panel members. It was intended to ascertain what they thought was the most important duties or tasks a MAF C2 enterprise (regardless of service provider, TACC or AMD) must bring to the fight in your AOR. Round three was a summary of those points and the panel was asked to provide a Likert rating based on their level of agreement. The panel clearly "strongly agree" that these duties and tasks were the most important to a MAF C2 enterprise (Figure 23 and Figure 24).

The most important duties or tasks of a MAF C2 enterprise (in no particular order)…..
-Clearly understand the commander's priorities and intent
-Provide responsive, flexible and synchronized MAF resources and solutions against diverse and varied COCOM requirements
-Execute time sensitive, adaptable and integrated mobility C2 oversight within the specific AOR and if need be across theaters to ensure those commander's priorities are met

Please provide your ranking 1 to 5 ____ **Rd 3-Median** / **5**

Figure 24: Question Nine Median Responses

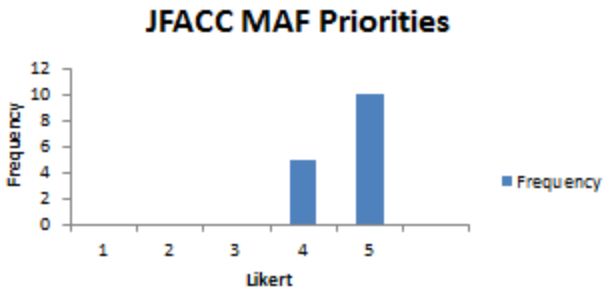

Figure 25: Question Nine

Overall, the Delphi study conducted in this research was a typical three round Delphi process for graduate students. The research reached consensus in several focus questions but not in all areas researched. Ultimately the resulting data in Chapter IV provided some unique perspectives and conclusions with regard to the impact of the proposed AMD consolidation. Chapter V highlights some of those conclusions and recommendations.

V. Conclusion and Recommendations

"We are all pilgrims on the same journey—but some pilgrims have better roadmaps."
Nelson DeMille

Summary of the Research

The purpose of this research was to determine whether or not the geographic AMDs should be consolidated into TACC. The study examined four critical sub-questions to assess that proposal. The first area examined was whether consolidation of AMDs into TACC would yield tangible and value-added effects and efficiencies. The second question was whether the AMD consolidation would cause degradation in MAF C2 performance. Third, would a consolidated MAF C2 organization be less responsive to the desires of the Air Force customer, the GCC and their associated JFACC. Similarly, the research examined some negatives of consolidation. Finally the fourth critical area, was whether a combined MAF C2 results in more focused and attentive service to the customer. If so, does the research support that consolidation would produce greater benefits to that same customer.

The research started out with the examination of the positive aspects of both AMDs and TACC. For both MAF C2 organizations, the Delphi panel reached strong consensus on a comprehensive list of positive areas that each organization is successful at providing a rank ordered those items by importance. Tables 7 and 8 lists those key focus areas for both organizations that the panel believes are important. The research consensus highlights that if consolidation is further pursued, leaders absolutely must consider the following key areas: ensuring responsiveness to the JFACC and COCOM's priorities, integration and synchronization within an AOC to provide dynamic mission

changes during execution, ensuring real-time integration into the JFACC's decision loop and AOC battle rhythm, and an understanding of the theater specific missions. The panel also critically emphasized consolidation should not cause a reduction in TACC's performance areas of: ensuring global visibility, integrated flight management and diplomatic clearances, global aeromedical evacuation, and global enroute support and maintenance. Conversely, if Air Force leadership chooses consolidation as the preferred course of action, then the Delphi panel articulated the top eight principles that should be the foundational focus of any future combined organization.

Table 7: Panel's Consensus on AMDs and TACC Rank Order of Task Priorities

Rank	AMDs	TACC
1	JFACC/COCOM priorities	Global Vis
2	Real-time or tighter C2 decision loop	Global Allocation to Requirement
3	Optimize organic MAF and capabilities	Central Prioritization
4	Integrate & Synch within AOC	IFM, Dips, FLT Management
5	Theater specific msns/directed msns	Ground Spt/AMC Enroute
6	Planning for Theater campaign/OPLANS	Global AE
7	Translate end users/joint customers	Maximize Intertheater Utility
8	Optimize entire theater logistics support	Worldwide MX
9	Theater engagement/phase 0/BP	AFRC and ANG measure
10	--------	Scaleable Workforce

Table 8: Panel's Consensus on AMDs and TACC Top 4 Organizational Successes

AMDs	TACC
JFACC/COCOM priorities	Global Vis
Integrate & Synch within AOC	IFM, Dips, FLT Management
Real-time or tighter C2 decision loop	Global AE
Theater specific msns/directed msns	Ground Spt/AMC Enroute

Overall, the panel expressed strong consensus on the positive traits of AMD and TACC and underscored the inherent satisfaction with those organizations. This is not to say there could not be area of improvement, but generally the panel senior leaders felt

both organizations were largely successful in their specific focus areas. The other critical takeaway in this area was the uniqueness of both organizations. Surprisingly, the panel articulated very little overlapping roles for the AMD and TACC. The lack of overlap underscored the point that both AMD and TACC bring distinctive capabilities to MAF C2.

However, with regard to the positives on AMD consolidation, the research highlighted a near total lack of consensus. In fact, there was clear disagreement and polar extremes on whether or not the AMD consolidation would even be beneficial. While the intent of a Delphi study is to reach consensus, this lack of consensus is also just as powerful of an indicator. In fact, the discord underscores the fundamental premise of this research that consolidation yields questionable tangible and value-added effects and efficiencies. Conversely, the lack of consensus does not unequivocally indicate that consolidation is all bad, but it does lend itself to strong concern that the AMD consolidation would be overall detrimental to the Air Force.

This transitions into the next research question of whether the AMD consolidation would cause degradation in MAF C2 performance. Here the panel moderately agreed that the consolidation would result in notable negatives and unintended consequences. The panel's top five negatives from AMD consolidation are located in Table 9. The panel's consensus on the negatives factors and lack of consensus on the positives for consolidation indicate the panel's overall belief there will be more adverse effects from AMD consolidation than constructive value added.

Table 9: Panel's Top 5 Issues with Consolidation

Panel's Top 5 Issues with Consolidation
Reduced focus on JFACC specific requirements
Reduces AOR familiarity, knowledge and relationships
Reduced face-to-face with other AOC divisions
De-emphasis of regional mobility experience
Out of synch battle rhythms

Similarly, on the issue whether or not a consolidated MAF C2 organization would be less responsive to the desires to the JFACC and GCC. Table 9 underscores the panel's number one concern that consolidation would directly result in reduced focus to the JFACC. The panel's strong consensus indicates they are genuinely apprehensive that a consolidation would result in a future MAF C2 organization that is more focused and attentive to providing quality service to the regional customers.

Lastly, the panel strongly concluded that in any MAF C2 organization, present or future, that in order to succeed MAF C2 must do the following three tasks: clearly understand the commander's priorities and intent, second provide responsive, flexible and synchronized MAF resources and solutions against diverse and varied COCOM requirements, and finally execute time sensitive, adaptable and integrated mobility C2 oversight inside and outside the AOR to ensure those commander's intent are met. Regardless of what organization leads the fight in the future, the panel firmly believes MAF C2 must understand and implement these concepts in order to be successful.

I believe Thomas Coakley in his book *Command and Control for War and Peace* summarized C2 best when he said:

> The Greek concept of the "golden mean" is as old as the precepts of Sun Tzu and maybe of comparable use to commanders. Finding the mean is key to a balanced approach to many questions, practical ones as well as ethical ones. When we approach command and control issues as questions of balance, we're less likely to overlook something, such as a vital interaction among different command and control element. (Coakley, 1992)

Significance of Research

As emphasized throughout this paper, this research is not intended to be a sole source advocating either for or against consolidation. Rather, the research is a tool to provide to Air Force leaders who will ultimately make the decision on consolidation. As articulated in this closing, the Delphi study highlighted that both AMD and TACC provide value to MAF C2. This study also underscored the senior leaders' concerns with regard to the value of AMD consolidation. The Delphi data appears to indicate that these leaders are more confident and in agreement with the negatives from consolidation than they are for the positives of a future consolidated MAF C2 organization.

The study appears to indicate that the concerns of consolidation are well-founded given the level of panel consensus. Therefore, it is safe to surmise that given current information and context, AMD consolidation should not be a desired end state at this time. However, as the Air Force continues to evolve and new information and technologies develops the consolidation issue should be continually revisited.

Recommendations for Future Research

Clearly, this research examined only one aspect of AMD and TACC consolidation. The bulk of this study was qualitative in nature, but there is a large portion of data that remains to be examined from the quantitative perspective. For example, an intensive manpower study should be accomplished in conjunction with any future

determinations for both the AMDs and TACC. Another area for research is whether or not the Air Force has the physical space to consolidate all the MAF C2 functions into a single location without significant infrastructure changes. Similarly, a follow on research area is to examine the influence and ability to conduct more MAF C2 via distributed operations similar to the global architecture of the intelligence and surveillance community. Likewise, a further study area could investigate the habitual relationships that the Guard and Reserve regional Air Mobility Operations Squadrons maintain with the geographic commands. Lastly while full consolidation is currently suspect, the development of a hybrid MAF C2 organization that is able to optimize the positives attributes of both organizations should be further explored.

Conclusion

In closing, a quote from Lieutenant General Jan-Marc Jouas which he gave to the Advanced Studies of Air Mobility 2013 Class, "always remember it is about the relationships that you form … that virtual presence equates to actual absence" (Jouas, 2013). Whichever way our Air Force leaders decide to follow with regard to consolidation, the key is that it is truly about the relationships that Airmen establish and maintain. Whether with your relationships with superiors, subordinates or peers, each one of those relationships requires a level of time and commitment that cannot always be accomplished remotely. Relationships are human interfaces that require an enormous amount of work, time and energy. Likewise, at some point relationships will require face to face interaction. Service members rely on each other and will ultimately surrender their lives for each other in service to our country. Subsequently, it is my opinion that the people, not the equipment or technology that make the United States Air Force the most

successful Air Force in the world. Therefore in order to continue our dominance, Airmen must always understand and not forgot what makes our Air Force great and that is our Airmen. Ultimately, it is those Airmen working together to achieve far more together for our country than they could ever accomplish separately or individually.

Glossary

AAF	Army Air Force
AF	Air Force
AFB	Air Force Base
AFCENT	Air Forces Central Command
AFIT	Air Force Institute of Technology
AFDD	Air Force Doctrine Document
AMC	Air Mobility Command
AMD	Air Mobility Division
AOR	Area of Responsibility
AOC	Air Operations Center
ASAM	Advanced Study of Air Mobility
ATC	Air Transport Command
ATO	Air Tasking Order
CENTCOM	Central Command
COCOM	Combatant Command
CONUS	Continental United States
C2	Command and Control
COA	Course of Action
CHOP	Change of Operational Control
DIRMOBFOR	Director of Mobility Forces
DOD	Department of Defense
DSCA	Defense Support of Civil Authorities
JFACC	Joint Forces Air Component Commander
JFC	Joint Forces Commander
FAA	Federal Aviation Administration
JCS	Joint Chiefs of Staff
GCC	Geographic Combatant Commander
HAF	Headquarters Air Force
HQ	Headquarters
IQR	Inter-Quartile Range
IRB	Institutional Review Board
ISR	Intelligence, Surveillance, Reconnaissance
MAJCOM	Major Command
MATS	Military Air Transport Command
MAF	Mobility Air Force
OPCON	Operational Control
OIF	Operation IRAQI FREEDOM
PBR	Presidential Budget Directive
SL	Senior Leader
TRANSCOM	Transportation Command
TACC	Tanker Airlift Control Center
USFK	United States Forces Korea

Appendix A. Round One

Questionnaire #1: Initial Survey
The Future Construct of Air Mobility Command and Control Enterprise

You are receiving this questionnaire as a mobility expert, Air Force Senior leader or direct customer of the air mobility command and control enterprise. *The purpose of this research is to conduct a qualitative study in an effort to ascertain the efficiency and effectiveness of the proposed consolidation of the regional Air Mobility Divisions (AMD) and the Tanker Airlift Control Center/618th AOC (TACC).* By responding, **you have the unique opportunity to influence and shape the future of the air mobility command and control enterprise.**

Background: Because each respondent will have a different perspective, here is a brief overview of the study topic.

Air Mobility Command and Headquarters Air Force are examining options of how to conduct air mobility command and control for the next generation. One of the potential options is to consolidate the AMDs under TACC and execute all the C2 of air mobility under a single umbrella. The AMD consolidation could create some efficiencies in the centralization process; however, there are concerns on the possible impact for the regional combatant commanders and JFACCs to prosecute their specific operations. Another exploratory option is to increase the interface between the AMDs and TACC and allow for additional execution of mobility C2 via distributed mission operations. The last alternative is to continue executing mobility under the current mobility construct.

The data obtained through this study will form recommendations that will be offered to decision makers at the Geographic Combatant Commands, Air Force Headquarters and Major Commands in order to shape the future of this mission. This is not just a typical survey but rather Delphi study. The reason I chose a Delphi study is because this research problem does not lend itself to a simple survey. The proposed consolidation is a broad and complex problem which represents numerous unique challenges and concerns across the DOD authority, Joint services, and civilian leadership. The impact of the AMDs and TACC cannot be quantified into a single metric by which one can scale. The Delphi method is an iterative, group communication process which is used to collect and distill the judgments of experts using a series of questionnaires interspersed with group feedback. You as a panel member embody the diverse backgrounds with respect to experience and expertise. It is through these backgrounds combined with the iterative Delphi study, I plan to answer the research question.

Thank you for participating in this research study. I truly value and appreciate your time and candid responses.

Please note the following:
Benefits and risks: There are no personal benefits or risks for participating in this study. Your participation in completing this questionnaire should take less than 30 minutes per round.

Confidentiality: Questionnaire responses are confidential. Your identity will not be associated with any responses you give in the final research report. No individual data will be reported; only data in aggregate will be made public. I understand that the names and associated data I collect must be protected at all times, only be known to the researcher, and managed according to the Air Force Institute of Technology (AFIT) interview protocol. At the conclusion of the study, all data will be turned over to the advisor and all other copies will be destroyed.

Voluntary consent: Your participation in this study is completely voluntary. You have the right to decline to answer any question, to refuse to participate or to withdraw at any time. Your decision of whether or not to participate will not result in any penalty or loss of benefits to which you are otherwise entitled. Completion of the questionnaire implies your consent to participate.

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The sponsor for this research is Colonel Robert 'Joe' Dague, the Director of Current Operations at the TACC Scott Air Force Base, Illinois.

Process:
1. Please complete this survey **electronically** and return it to: **aaron.oelrich@us.af.mil** no later than **6 January 2012.** If you have questions, I can be reached at CELL 612-865-xxxx or via DSN 754-7748.

2. This questionnaire is an instrument of a Delphi study. The questionnaires are designed to focus on problems, opportunities, solutions or forecasts. Each questionnaire is developed based on the group results of the previous questionnaire. The process continues until the research question is ultimately answered. For example, when consensus is reached or sufficient information has been exchanged. This on average takes three to four rounds with the panel. There are four background questions and four primary questions for this round. The background questions are requested to establish your particular expertise for the study and will not be shared specifically in the report. Again, the questionnaire is non-attribution, so please elaborate fully on your answers. Subsequent rounds will be announced as needed and all research will conclude by March 2012.

Research questions:
Please answer the following questions as clearly and concisely as possible without omitting critical information required for the group to consider your opinions. Provide any appropriate rationale for your responses.

1. What tasks and duties do you believe the TACC/618 AOCth does inherently well?

2. What tasks and duties do you believe the geographic AMDs do inherently well?

3. List or describe the potential positives or ancillary advantages a centralized functional AMD under TACC would provide?

4. List or describe the potential negatives or unintended consequences of a centralized functional AMD under TACC?

5. Do you believe a centralized AMD would be more efficient, effective, neither or a combination of both? Please Expound.

Appendix B. Round Two

Questionnaire #2
The Future Construct of Air Mobility Command and Control Enterprise

You are receiving this questionnaire as a mobility expert, Air Force Senior Leader or direct customer of the air mobility command and control enterprise. *The purpose of this research is to conduct a qualitative study to ascertain the efficiency and effectiveness of the proposed consolidation of the regional Air Mobility Divisions (AMD) and the Tanker Airlift Control Center/618th AOC (TACC).* By responding, **you have the unique opportunity to influence and shape the future of the air mobility command and control enterprise.**

Please note the following:
Benefits and risks: There are no personal benefits or risks for participating in this study. Your participation in completing this questionnaire should take less than 30 minutes per round.

Confidentiality: Questionnaire responses are confidential. Your identity will not be associated with any responses you give in the final research report. No individual data will be reported; only data in aggregate will be made public. I understand that the names and associated data I collect must be protected at all times, only be known to the researcher, and managed according to the Air Force Institute of Technology (AFIT) interview protocol. At the conclusion of the study, all data will be turned over to the advisor and all other copies will be destroyed.

Voluntary consent: Your participation in this study is completely voluntary. You have the right to decline to answer any question, to refuse to participate or to withdraw at any time. Your decision of whether or not to participate will not result in any penalty or loss of benefits to which you are otherwise entitled. Completion of the questionnaire implies your consent to participate.

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The sponsor for this research is Colonel Robert 'Joe' Dague, the Director of Current Operations at the TACC Scott Air Force Base, Illinois.

Process:
1. Please complete this survey **electronically** and return it to: **aaron.oelrich@us.af.mil** no later than **1 February 2013.** If you have questions, I can be reached at CELL 612-865-xxxx or via DSN 754-7748.

2. This questionnaire is an instrument of a Delphi study. The questionnaires are designed to focus on problems, opportunities, solutions or forecasts. Each questionnaire is developed based on the group results of the previous questionnaire. The process continues until the research question is ultimately answered. For example, when consensus is reached or sufficient information has been exchanged. This on average takes three to four rounds with the panel. There are four background questions and four primary questions for this round. The background questions are requested to establish your particular expertise for the study and will not be shared specifically in the report. Again, the questionnaire is non-attribution, so please elaborate fully on your answers. Subsequent rounds will be announced as needed and all research will conclude by March 2013.

Example Questionnaire Round 2

1. In round one I asked the panel what tasks and duties do you believe the TACC/618th AOC does inherently well and the panel provided the following key areas. Please utilize the Likert Scale to measure whether you agree or disagree with the following statements.

5 = Strongly Agree
4 = Agree
3 = Undecided
2 = Disagree
1 = Strongly Disagree

TACC provides global visibility and strategic tracking of aircraft and movements. ____
TACC leverages worldwide ground support capabilities and the AMC enroute structure. ____
TACC executes global aeromedical evacuation across AOR borders well. ____
TACC provides centralized prioritization of MAF assets universally across GCC lines of responsibility. ____
TACC provides 24/7/365 crew and aircraft support via flight plans, dips and integrated flight management. ____
TACC manages the global allocation of MAF resources to requirements and timely reallocates. ____
TACC measures and manages the activation of AFRC and ANG assets. ____
TACC maximizes the overall utility and benefit of intertheater assets. ____
TACC uniquely provides a scalable workforce capable of changes in workload, situational demands & crisis. ____
TACC orchestrates and integrates worldwide mobility maintenance capability. ____

Optional-Provide additional comments (agree/disagree/clarify)

2. Additionally, please now rank order the list below of tasks and duties you believe the TACC/618th AOC does inherently well from 1 to 10. With 1 being what you feel is the most important task the TACC/618th AOC does and 10 being the least important.

Rank Order the below list 1 to 10

-Provides global visibility and strategic tracking of aircraft and movements ____
-Leverages worldwide ground support capabilities and the AMC enroute structure ____
-Executes global aeromedical evacuation across AOR borders ____
-Provides centralized prioritization of MAF assets universally across the GCC lines of responsibility ____
-Provides 24/7/365 crew and aircraft support via flight plans, dips and integrated flight management ____
-Manages global allocation and timely reallocates MAF resources to requirements ____
-Measures and manages the activation of AFRC and ANG assets ____
-Maximizes the overall utility and benefit of intertheater assets ____
-Provides a scalable workforce capable of changes in workload, situational demands, and crisis ____
-Orchestrates and integrates worldwide mobility maintenance capability ____

3. In round one I asked the panel what tasks and duties do you believe the geographic AMDs do inherently well and the panel provided the following key areas. Please utilize the Likert Scale to measure whether you agree or disagree with the following statements.

5 = Strongly Agree
4 = Agree
3 = Undecided
2 = Disagree
1 = Strongly Disagree

AMDs are uniquely responsive to their individual JFACC and COCOM's priorities and requests. ____
AMDs are able to operate in a real-time or a "tighter" decision command and control loop within their AOR. ____
AMDs integrate and synchronize with other AOC divisions to provide AOD, ATO and dynamic mission changes during execution. ____
AMDs optimize organic MAF assets and capabilities to meet regional requirements. ____
AMDs do not just focus solely on air mobility but optimize the entire theater logistical support. ____
AMDs are uniquely involved in the theater campaign planning processes and theater OPLANs. ____
AMDs execute and orchestrate theater specific and directed missions well. (For example air drop or wild fire suppression) ____
AMDs are instrumental in allied theater engagement, building partnerships and phase 0 shaping. ____
AMDs translate and coordinate well with the end users and joint customers. ____

Optional-Provide additional comments (agree/disagree/clarify)

4. Additionally, please now rank order the list below with what you feel is the most important task the geographic AMDs do inherently well from 1 to 9. With 1 being what you feel is the most important task the AMDs do and 9 being the least important.

Rank Order the below list 1 to 9

-Uniquely responsive to their individual JFACC and COCOM's priorities and requests ____
-Able to operate in a real-time or tighter decision command and control loop within their AOR ____
-Integrates and synchronizes with other AOC divisions to provide AOD, ATO and dynamic mission changes during execution ____
-Optimize organic MAF assets and capabilities to meet regional requirements ____
-Focus not just on air mobility but optimizes entire theater logistical support ____
-Involved in the theater campaign planning processes and theater OPLANs ____
-Executes and orchestrates theater specific missions for example like air drop or wild fire suppression. ____
-Instrumental in allied theater engagement, building partnerships and phase 0 shaping ____
-Translates and coordinates with end user and joint customers ____

5. In round one I asked the panel to list the potential positives or ancillary advantages a centralized functional AMD within TACC could provide and you provided the following list. Please utilize the Likert Scale to gauge whether you agree or disagree with the following statements.

5 = Strongly Agree
4 = Agree
3 = Undecided
2 = Disagree
1 = Strongly Disagree

The AMDs consolidation within TACC…..

would yield efficiencies through consolidated manpower for MAF leadership and functional personnel. ____
would reduce the deployed personnel or forward presence footprint. ____
increases the continuity of operations and ensure consistent staff expertise across all mobility sets. (AE, AR, aerial delivery, mx, etc.) ____
would ensure a disciplined central prioritization and requirements process across all COCOMs. ____
increase the situational awareness and visibility on the global air mobility picture. ____
would synchronize strategic and tactical mission sets across COCOMs. ____
leverages a consolidated IT systems. ____
maximizes utility of all intra-theater and inter-theater MAF assets. ____

Optional-Provide additional comments (agree/disagree/clarify)

6. Additionally, please now rank order the list of the potential positives or ancillary advantages a centralized functional AMD within TACC could provide below from 1 to 8. With 1 being what you feel is the most important task is and 8 being the least important.

Rank Order the below list 1 to 8

-Yield efficiencies through consolidated manpower for MAF leadership and functional personnel. ____
-Reduce the deployed personnel or forward presence footprint. ____
-Increases the continuity of operations and ensure consistent staff expertise across all mobility sets. (AE, AR, aerial delivery, mx, etc.) ____
-Ensure a disciplined central prioritization and requirements process across all COCOMs. ____
-Increases the situational awareness and visibility on the global air mobility picture. ____
-Synchronizes strategic and tactical mission sets across all COCOMs. ____
-Leverages a consolidated IT systems. ____
-Maximizes utility of all intra-theater and inter-theater MAF assets. ____

7. In round one I asked the panel to list the potential negatives or unintended consequences of a centralized functional AMD under TACC and you provided the following list. Please utilize the Likert Scale to gauge whether you agree or disagree with the following statements.

5 = Strongly Agree
4 = Agree
3 = Undecided
2 = Disagree
1 = Strongly Disagree

The AMDs consolidation into TACC….

would reduce the face-to-face interactions and communications between MAF C2 and the other warfighting AOC divisions. ____
would reduce AOR specific familiarity, knowledge and relationships. ____
cause out of synch battle rhythms or numerous rhythms based on theater specific operations or crisis. ____
reduces focus and a disconnected responsiveness to a JFACC or COCOM specific requirements or issues. ____
de-emphasizes or reduces mobility expertise and personnel in the regional theaters, generalists vs. experts. ____
sub-optimizes regional requirements at the expense of other global needs. ____
weakens the joint concept of COCOM's authority over logistics. ____
negatively affects building partnership capacity and phase 0 shaping. ____
causes a focus loss on theater OPLANs and theater specific contingencies. ____
creates C2 and doctrinal conflict over a central management of the remaining theater assigned MAF assets. ____

Optional-Provide additional comments (agree/disagree/clarify)

8. Additionally, please now rank order the list of the potential negatives or unintended consequences of a centralized functional AMD under TACC below from 1 to 10. With 1 being what you feel is the most important task is and 10 being the least important.

Rank Order the below list 1 to 10

-Reduces face-to-face interactions and communications between MAF C2 & other warfighting AOC divisions ____
-Reduces AOR specific familiarity, knowledge and relationships ____
-Out of synch battle rhythms or numerous rhythms based on theater specific operations or crisis. ____
-Reduces focus and a disconnected responsiveness to a JFACC or COCOM specific requirements or issues ____
-De-emphasizes or reduces mobility expertise and personnel in the regional theaters, generalists vs. experts ____
-Sub-optimizes regional requirements at the expense of other global needs. ____
-Weakens the joint concept of COCOM's authority over logistics ____
-Negatively affects building partnership capacity and phase 0 shaping ____
-Reduces focus on theater OPLANs and theater specific contingencies ____
-Creates C2 and doctrinal conflict over a central management of the remaining theater assigned MAF assets ____

9. Lastly, please address the following question from the perspective if you are, were or will be a JFACC. What do you think the most important duties or tasks a MAF C2 enterprise (regardless of service provider, TACC or AMD) must bring to the fight in your AOR? Preferably this would be your top 2 to 3 no fail items specific to the MAF C2 from your commander's intent.

Appendix C. Round Three

Questionnaire #3
The Future Construct of Air Mobility Command and Control Enterprise

You are receiving this questionnaire as a mobility expert, Air Force Senior Leader or direct customer of the air mobility command and control enterprise. *The purpose of this research is to conduct a qualitative study to ascertain the efficiency and effectiveness of the proposed consolidation of the regional Air Mobility Divisions (AMD) and the Tanker Airlift Control Center/618th AOC (TACC).* By responding, **you have the unique opportunity to influence and shape the future of the air mobility command and control enterprise.**

Please note the following:
Benefits and risks: There are no personal benefits or risks for participating in this study. Your participation in completing this questionnaire should take less than 30 minutes per round.

Confidentiality: Questionnaire responses are confidential. Your identity will not be associated with any responses you give in the final research report. No individual data will be reported; only data in aggregate will be made public. I understand that the names and associated data I collect must be protected at all times, only be known to the researcher, and managed according to the Air Force Institute of Technology (AFIT) interview protocol. At the conclusion of the study, all data will be turned over to the advisor and all other copies will be destroyed.

Voluntary consent: Your participation in this study is completely voluntary. You have the right to decline to answer any question, to refuse to participate or to withdraw at any time. Your decision of whether or not to participate will not result in any penalty or loss of benefits to which you are otherwise entitled. Completion of the questionnaire implies your consent to participate.

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The sponsor for this research is Colonel Robert 'Joe' Dague, the Director of Current Operations at the TACC Scott Air Force Base, Illinois.

Process:
1. Please complete this survey **electronically** and return it to: **aaron.oelrich@us.af.mil** no later than **26 February 2013.** If you have questions, I can be reached at CELL 612-865-xxxx or via DSN 754-7748.

2. This questionnaire is an instrument of a Delphi study. The questionnaires are designed to focus on problems, opportunities, solutions or forecasts. Each questionnaire is developed based on the group results of the previous questionnaire. The process continues until the research question is ultimately answered. For example, when consensus is reached or sufficient information has been exchanged. This on average takes three to four rounds with the panel. There are four background questions and four primary questions for this round. The background questions are requested to establish your particular expertise for the study and will not be shared specifically in the report. Again, the questionnaire is non-attribution, so please elaborate fully on your answers. Subsequent rounds will be announced as needed and all research will conclude by March 2013.

Example Questionnaire Round 3

1. In round two, I asked the panel what tasks and duties do you believe the TACC/618th AOC does inherently well. The panel provided the following responses. Please **compare your results** below to the panels and decide if you would like to modify your answer or retain your existing value. If you decide to keep your existing answer please expound below WHY you believe your answers are significantly different or unique from the rest of the panel.

5 = Strongly Agree
4 = Agree
3 = Undecided
2 = Disagree
1 = Strongly Disagree

	New Rating or Blank for Previous	Name	Panel Avg	Std Dev	Range
TACC provides global visibility and strategic tracking of aircraft and movements.	____	5	4.6	0.51	4 to 5
TACC leverages worldwide ground support capabilities and the AMC enroute structure.	____	4	4.4	0.51	4 to 5
TACC executes global aeromedical evacuation across AOR borders well.	____	5	4.4	0.65	3 to 5
TACC provides centralized prioritization of MAF assets universally across GCC lines of responsibility.	____	4	3.6	1.09	2 to 5
TACC provides 24/7/365 crew and aircraft support via flight plans, dips & integrated flight management.	____	4	4.4	0.65	3 to 5
TACC manages the global allocation of MAF resources to requirements and timely reallocates.	____	5	3.8	1.05	2 to 5
TACC measures and manages the activation of AFRC and ANG assets.	____	4	3.4	1.09	1 to 5
TACC maximizes the overall utility and benefit of intertheater assets.	____	5	4.1	1.23	1 to 5
TACC uniquely provides a scalable workforce capable of changes in workload, situational demands & crisis.	____	4	3.6	0.85	2 to 5
TACC orchestrates and integrates worldwide mobility maintenance capability.	____	5	4.0	0.88	2 to 5

Optional Comments

2. Additionally, I asked the panel to rank order the list below of tasks and duties do you believe the TACC/618th AOC does inherently well from 1 to 10 (with 1 being the most important task and 10 being the least important). The panel provided the following responses. Please **compare your results** below to the panels and decide if you would like to modify your answer or retain your existing value. You may reorder the entire column or you may choose to simply change only an individual ranking line. If you decide to keep your existing answer please expound below WHY you believe your answers are significantly different or unique from the rest of the panel.

Rank Order the below list 1 to 10

New Rating or Blank for Previous		Name	Panel Avg	Std Dev	Range	Median
-Provides global visibility and strategic tracking of aircraft and movements	____	1	1.9	1.41	1 to 6	2.0
-Leverages worldwide ground support capabilities and the AMC enroute structure	?____	8	5.3	1.91	1 to 9	5.0
-Executes global aeromedical evacuation across AOR borders	?____	2	4.9	1.88	2 to 7	5.0
-Provides centralized prioritization of MAF assets universally across the GCC lines of responsibility	____	4	4.3	2.21	1 to 8	4.0
-Provides 24/7/365 crew and aircraft support via flight plans, dips and integrated flight management	____	7	4.9	2.50	1 to 8	5.0
-Manages global allocation and timely reallocates MAF resources to requirements	____	3	3.9	2.19	1 to 9	3.5
-Measures and manages the activation of AFRC and ANG assets	____	10	7.8	2.21	3 to 10	9.0
-Maximizes the overall utility and benefit of intertheater assets	____	5	5.4	3.07	1 to 10	5.0
-Provides a scalable workforce capable of changes in workload, situational demands, and crisis	____	9	9.3	1.05	7 to 10	10.0
-Orchestrates and integrates worldwide mobility maintenance capability	____	6	7.3	2.15	2 to 10	8.0

Provide additional comments if you choose to remain different from the panel…..
-Leverages worldwide ground support capabilities and the AMC enroute structure
-Executes global aeromedical evacuation across AOR borders

3. In round two, I asked the panel what tasks and duties do you believe do you believe the geographic AMDs do inherently well. The panel provided the following responses. Please **compare your results** below to the panels and decide if you would like to modify your answer or retain your existing value. If you decide to keep your existing answer please expound below WHY you believe your answers are significantly different or unique from the rest of the panel.

5 = Strongly Agree
4 = Agree
3 = Undecided
2 = Disagree
1 = Strongly Disagree

New Rating or Leave Blank for Previous		Name	Panel Avg	Std Dev	Range
AMDs are uniquely responsive to their individual JFACC and COCOM's priorities and requests.	___	5	4.9	0.38	4 to 5
AMDs are able to operate in a real-time or a "tighter" decision command and control loop within their AOR.	___	4	4.6	1.07	2 to 5
AMDs integrate & synchronize w/ other AOC divisions to provide AOD, ATO & dynamic mission changes during execution.	?__	3	4.8	0.79	3 to 5
AMDs optimize organic MAF assets and capabilities to meet regional requirements.	___	4	4.5	1.07	2 to 5
AMDs do not just focus solely on air mobility but optimize the entire theater logistical support.	___	3	3.8	1.11	2 to 5
AMDs are uniquely involved in the theater campaign planning processes and theater OPLANs.	___	5	4.4	1.21	2 to 5
AMDs execute and orchestrate theater specific and directed missions well (For example air drop or wild fire suppression)	__	5	4.6	0.53	4 to 5
AMDs are instrumental in allied theater engagement, building partnerships and phase 0 shaping.	___	5	3.9	1.51	1 to 5
AMDs translate and coordinate well with the end users and joint customers.	___	4	4.1	1.15	2 to 5

additional comments if you choose to remain different from the panel…..
ntegrate & synchronize w/ other AOC divisions to provide AOD, ATO & dynamic mission changes during
n.

4. Additionally, I asked the panel to rank order the list below of tasks and duties do you believe the geographic AMDs do inherently well from 1 to 9 (with 1 being the most important task and 9 being the least important). The panel provided the following responses. Please **compare your results** below to the panels and decide if you would like to modify your answer or retain your existing value. You may reorder the entire column or you may choose to simply change only an individual ranking line. If you decide to keep your existing answer please expound below WHY you believe your answers are significantly different or unique from the rest of the panel.

Rank Order the below list 1 to 9

New Rating or Leave Blank for Previous		Names	Panel Avg	Std Dev	Range	Median
-Uniquely responsive to their individual JFACC and COCOM's priorities and requests	____	1	1.3	0.67	1 to 3	1.0
-Able to operate in a real-time or tighter decision command and control loop within their AOR	?___	6	3.1	1.57	2 to 6	2.0
-Integrates and synchronizes with other AOC divisions to provide AOD, ATO and dynamic mission changes during execution	?___	9	4.5	2.27	2 to 9	4.0
-Optimize organic MAF assets and capabilities to meet regional requirements	?___	5	3.8	1.38	1 to 8	4.0
-Focus not just on air mobility but optimizes entire theater logistical support	____	7	7.3	0.95	6 to 9	7.0
-Involved in the theater campaign planning processes and theater OPLANs	?___	3	5.6	1.98	3 to 9	5.5
-Executes and orchestrates theater specific missions for example like air drop or wild fire suppression.	____	4	5.6	2.07	1 to 9	5.0
-Instrumental in allied theater engagement, building partnerships and phase 0 shaping	?___	2	7.4	3.30	2 to 9	8.5
-Translates and coordinates with end user and joint customers	____	8	6.6	2.73	2 to 9	7.0

additional comments if you choose to remain different from the panel…..
operate in a real-time or tighter decision command and control loop within their AOR
es and synchronizes with other AOC divisions to provide AOD, ATO and dynamic mission changes
xecution
d in the theater campaign planning processes and theater OPLANs
ental in allied theater engagement, building partnerships and phase 0 shaping

5. In round two, I asked the panel what tasks and duties do you believe are the potential positives or ancillary advantages a centralized functional AMD within TACC. The panel provided the following responses. Please **compare your results** below to the panels and decide if you would like to modify your answer or retain your existing value. If you decide to keep your existing answer please expound below WHY you believe your answers are significantly different or unique from the rest of the panel.

5 = Strongly Agree
4 = Agree
3 = Undecided
2 = Disagree
1 = Strongly Disagree

The AMDs consolidation within TACC…..	**New Rating or Blank for Previous**	Name	Panel Avg	Std Dev	Range
would yield efficiencies through consolidated manpower for MAF leadership and functional personnel.	____	3	3.4	1.27	1 to 5
would reduce the deployed personnel or forward presence footprint.	?____	2	3.9	1.35	2 to 5
increases the continuity of operations and ensure consistent staff expertise across all mobility sets. (AE, AR, aerial delivery, mx, etc.)	____	3	3.3	0.79	2 to 5
would ensure a disciplined central prioritization and requirements process across all COCOMs.	____	3	3.2	1.27	1 to 5
increase the situational awareness and visibility on the global air mobility picture.	____	2	3.3	1.21	1 to 5
would synchronize strategic and tactical mission sets across COCOMs.	____	4	2.8	0.76	1 to 4
leverages a consolidated IT systems.	____	2	3.4	1.27	2 to 5
maximizes utility of all intra-theater and inter-theater MAF assets.	____	3	2.7	1.62	1 to 5

additional comments if you choose to remain different from the panel…..
duce the deployed personnel or forward presence footprint.

6. Additionally, I asked the panel to rank order the list below of the potential positives or ancillary advantages a centralized functional AMD within TACC would yield from 1 to 8 (with 1 being the most important task and 8 being the least important). The panel provided the following responses. Please **compare your results** below to the panels and decide if you would like to modify your answer or retain your existing value. You may reorder the entire column or you may choose to simply change only an individual ranking line. If you decide to keep your existing answer please expound below WHY you believe your answers are significantly different or unique from the rest of the panel.

Rank Order the below list 1 to 8	**New Rating or Blank for Previous**	Name	Panel Avg	Std Dev	Range	Median
-Yield efficiencies through consolidated manpower for MAF leadership and functional personnel.	____	5	4.8	2.24	1 to 8	5.0
-Reduce the deployed personnel or forward presence footprint.	____	6	5.4	2.15	1 to 8	6.0
-Increases the continuity of operations and ensure consistent staff expertise across all mobility sets. (AE, AR, aerial delivery, mx, etc.)	____	3	4.1	1.35	1 to 7	4.0
-Ensure a disciplined central prioritization and requirements process across all COCOMs.	____	4	3.4	1.90	1 to 7	3.5
-Increases the situational awareness and visibility on the global air mobility picture.	____	7	3.9	2.14	1 to 7	3.5
-Synchronizes strategic and tactical mission sets across all COCOMs.	?____	1	4.8	2.76	1 to 8	5.0
-Leverages a consolidated IT systems.	____	8	6.2	2.27	2 to 8	7.5
-Maximizes utility of all intra-theater and inter-theater MAF assets.	____	2	3.4	1.70	1 to 7	3.0

additional comments if you choose to remain different from the panel…..
nizes strategic and tactical mission sets across all COCOMs.

7. In round two, I asked the panel what tasks and duties do you believe are the potential negatives or unintended consequences of a centralized functional AMD under TACC. The panel provided the following responses. Please **compare your results** below to the panels and decide if you would like to modify your answer or retain your existing value. If you decide to keep your existing answer please expound below WHY you believe your answers are significantly different or unique from the rest of the panel.

5 = Strongly Agree
4 = Agree
3 = Undecided
2 = Disagree
1 = Strongly Disagree

The AMDs consolidation into TACC….	**New Rating or Blank for Previous**	Name	Panel Avg	Std Dev	Range
would reduce the face-to-face interactions and communications between MAF C2 & the other warfighting AOC divisions?	__	1	4.44	1.41	1 to 5
would reduce AOR specific familiarity, knowledge and relationships.	___	5	4.63	1.07	2 to 5
cause out of synch battle rhythms or numerous rhythms based on theater specific operations or crisis.	___	4	3.88	0.95	2 to 5
reduces focus and a disconnected responsiveness to a JFACC or COCOM specific requirements or issues.	___	4	4.25	0.90	2 to 5
de-emphasizes or reduces mobility expertise and personnel in the regional theaters, generalists vs. experts.	___	4	4.13	0.90	3 to 5
sub-optimizes regional requirements at the expense of other global needs.	___	4	3.69	0.90	2 to 5
weakens the joint concept of COCOM's authority over logistics.	___	3	3.63	0.95	2 to 5
negatively affects building partnership capacity and phase 0 shaping.	?__	5	3.75	1.50	1 to 5
causes a focus loss on theater OPLANs and theater specific contingencies.	___	4	3.81	0.98	2 to 5
creates C2 and doctrinal conflict over a central management of the remaining theater assigned MAF assets.	___	4	3.88	0.49	3 to 5

additional comments if you choose to remain different from the panel…..
educe the face-to-face interactions and communications between MAF C2 & the other warfighting AOC divisions
ely affects building partnership capacity and phase 0 shaping

8. Additionally, I asked the panel to rank order the list below of the potential negatives or unintended consequences of a centralized functional AMD under TACC from 1 to 10 (with 1 being the most important task and 10 being the least important). The panel provided the following responses. Please **compare your results** below to the panels and decide if you would like to modify your answer or retain your existing value. You may reorder the entire column or you may choose to simply change only an individual ranking line. If you decide to keep your existing answer please expound below WHY you believe your answers are significantly different or unique from the rest of the panel.

Rank Order the below list 1 to 10	**New Rating or Blank for Previous**	Name	Panel Avg	Std Dev	Range	Median
-Reduces face-to-face interactions and communications between MAF C2 & other warfighting AOC divisions?	___	9	4.19	1.94	2 to 9	4.0
-Reduces AOR specific familiarity, knowledge and relationships	?___	8	3.81	2.44	1 to 8	4.0
-Out of synch battle rhythms or numerous rhythms based on theater specific operations or crisis.	?___	1	5.31	2.44	1 to 9	5.0
-Reduces focus and a disconnected responsiveness to a JFACC or COCOM specific requirements or issues	____	3	1.75	0.95	1 to 5	1.0
-De-emphasizes or reduces mobility expertise and personnel in the regional theaters, generalists vs. experts	____	7	5.56	1.68	2 to 9	6.0
-Sub-optimizes regional requirements at the expense of other global needs.	____	4	5.56	2.30	2 to 10	5.0
-Weakens the joint concept of COCOM's authority over logistics	____	10	8.06	1.63	5 to 10	8.5
-Negatively affects building partnership capacity and phase 0 shaping	?___	2	7.81	3.34	2 to 10	9.0
-Reduces focus on theater OPLANs and theater specific contingencies	____	6	5.69	2.70	2 to 10	6.5
-Creates C2 and doctrinal conflict over a central management of the remaining theater assigned MAF assets	?___	5	7.19	3.51	1 to 10	8.0

additional comments if you choose to remain different from the panel…..
s face-to-face interactions and communications between MAF C2 & other warfighting AOC divisions
s AOR specific familiarity, knowledge and relationships
ynch battle rhythms or numerous rhythms based on theater specific operations or crisis.
ely affects building partnership capacity and phase 0 shaping
C2 and doctrinal conflict over a central management of the remaining theater assigned MAF assets

9. In round two, I asked the panel what do you think the most important duties or tasks a MAF C2 enterprise (regardless of service provider, TACC or AMD) must bring to the fight in your AOR as a JFACC? Please utilize the Likert Scale to measure whether you agree or disagree with the following statement.

5 = Strongly Agree
4 = Agree
3 = Undecided
2 = Disagree
1 = Strongly Disagree

The most important duties or tasks of a MAF C2 enterprise (in no particular order)…..
-Clearly understand the commander's priorities and intent
-Provide responsive, flexible and synchronized MAF resources and solutions against diverse and varied COCOM requirements
-Execute time sensitive, adaptable and integrated mobility C2 oversight within the specific AOR and if need be across theaters to ensure those commander's priorities are met

Please provide your ranking 1 to 5 ____

Appendix D. Final Data

Question 1

	Panel Avg	5	4	3	2	1
TACC provides global visibility and strategic tracking of aircraft and movements.	4.6	56.3%	43.8%	0.0%	0.0%	0.0%
TACC leverages worldwide ground support capabilities and the AMC enroute structure.	4.4	43.8%	56.3%	0.0%	0.0%	0.0%
TACC executes global aeromedical evacuation across AOR borders well.	4.4	50.0%	43.8%	6.3%	0.0%	0.0%
TACC provides centralized prioritization of MAF assets universally across GCC lines of responsibility.	3.6	12.5%	56.3%	6.3%	25.0%	0.0%
TACC provides 24/7/365 crew and aircraft support via flight plans, dips and integrated flight management.	4.5	56.3%	37.5%	6.3%	0.0%	0.0%
TACC manages the global allocation of MAF resources to requirements and timely reallocates.	3.8	25.0%	43.8%	18.8%	12.5%	0.0%
TACC measures and manages the activation of AFRC and ANG assets.	3.4	6.3%	56.3%	12.5%	18.8%	6.3%
TACC maximizes the overall utility and benefit of intertheater assets.	4.1	43.8%	37.5%	6.3%	6.3%	6.3%
TACC uniquely provides a scalable workforce capable of changes in workload, situational demands & crisis.	3.6	6.3%	56.3%	25.0%	12.5%	0.0%
TACC orchestrates and integrates worldwide mobility maintenance capability.	4.1	25.0%	56.3%	18.8%	0.0%	0.0%

Question 3

	Panel Avg	5	4	3	2	1
AMDs are uniquely responsive to their individual JFACC and COCOM's priorities and requests.	4.9	87.5%	12.5%	0.0%	0.0%	0.0%
AMDs are able to operate in a real-time or a "tighter" decision command and control loop within their AOR.	4.7	75.0%	18.8%	6.3%	0.0%	0.0%
AMDs integrate and synchronize with other AOC divisions to provide AOD, ATO and dynamic mission changes during execution.	4.8	81.3%	12.5%	6.3%	0.0%	0.0%
AMDs optimize organic MAF assets and capabilities to meet regional requirements.	4.5	62.5%	31.3%	0.0%	6.3%	0.0%
AMDs do not just focus solely on air mobility but optimize the entire theater logistical support.	3.8	18.8%	50.0%	18.8%	12.5%	0.0%
AMDs are uniquely involved in the theater campaign planning processes and theater OPLANs.	4.4	62.5%	18.8%	12.5%	6.3%	0.0%
AMDs execute and orchestrate theater specific and directed missions well. (For example air drop or wild fire suppressio	4.6	56.3%	43.8%	0.0%	0.0%	0.0%
AMDs are instrumental in allied theater engagement, building partnerships and phase 0 shaping.	3.9	37.5%	31.3%	25.0%	0.0%	6.3%
AMDs translate and coordinate well with the end users and joint customers.	4.1	37.5%	37.5%	18.8%	6.3%	0.0%

Question 5

The AMDs consolidation within TACC…..	Panel Avg	5	4	3	2	1
would yield efficiencies through consolidated manpower for MAF leadership and functional personnel	3.3	6.3%	43.8%	31.3%	12.5%	6.3%
would reduce the deployed personnel or forward presence footprint.	3.9	37.5%	31.3%	18.8%	12.5%	0.0%
increases the continuity of operations and ensure consistent staff expertise across all mobility sets. (AE, AR, aerial delivery, mx, etc.)	3.3	6.3%	31.3%	43.8%	18.8%	0.0%
would ensure a disciplined central prioritization and requirements process across all COCOMs.	3.2	6.3%	37.5%	31.3%	18.8%	6.3%
increase the situational awareness and visibility on the global air mobility picture.	3.3	18.8%	12.5%	50.0%	12.5%	6.3%
would synchronize strategic and tactical mission sets across COCOMs.	3.0	0.0%	25.0%	50.0%	25.0%	0.0%
leverages a consolidated IT systems.	3.4	6.3%	56.3%	6.3%	31.3%	0.0%
maximizes utility of all intra-theater and inter-theater MAF assets.	2.8	18.8%	0.0%	37.5%	31.3%	12.5%

Question 7

The AMDs consolidation into TACC….	nel Avg	5	4	3	2	1
would reduce the face-to-face interactions and communications between MAF C2 and the other warfighting AOC divisions.	4.6	62.5%	37.5%	0.0%	0.0%	0.0%
would reduce AOR specific familiarity, knowledge and relationships.	4.8	75.0%	25.0%	0.0%	0.0%	0.0%
cause out of synch battle rhythms or numerous rhythms based on theater specific operations or crisis.	4.0	18.8%	62.5%	18.8%	0.0%	0.0%
reduces focus and a disconnected responsiveness to a JFACC or COCOM specific requirements or issues.	4.3	37.5%	56.3%	6.3%	0.0%	0.0%
de-emphasizes or reduces mobility expertise and personnel in the regional theaters, generalists vs. experts.	4.1	31.3%	50.0%	18.8%	0.0%	0.0%
sub-optimizes regional requirements at the expense of other global needs.	3.8	12.5%	56.3%	31.3%	0.0%	0.0%
weakens the joint concept of COCOM's authority over logistics.	3.7	12.5%	43.8%	43.8%	0.0%	0.0%
negatively affects building partnership capacity and phase 0 shaping.	3.7	18.8%	50.0%	18.8%	6.3%	6.3%
causes a focus loss on theater OPLANs and theater specific contingencies.	3.9	25.0%	37.5%	37.5%	0.0%	0.0%
creates C2 and doctrinal conflict over a central management of the remaining theater assigned MAF assets.	3.9	12.5%	62.5%	25.0%	0.0%	0.0%

Question 9

The most important duties or tasks of a MAF C2 enterprise (in no particular order).....
-Clearly understand the commander's priorities and intent
-Provide responsive, flexible and synchronized MAF resources and solutions against diverse and varied COCOM requirements
-Execute time sensitive, adaptable and integrated mobility C2 oversight within the specific AOR and if need be across theaters to ensure those commander's priorities are met

Panel Avg	5	4	3	2	1
4.7	62.5%	31.3%	0	0	0

Appendix E. AFIT Human Subjects Exemption Approval

DEPARTMENT OF THE AIR FORCE
AIR FORCE INSTITUTE OF TECHNOLOGY
WRIGHT-PATTERSON AIR FORCE BASE OHIO

7 Nov 2012

MEMORANDUM FOR DR ALAN HEMINGER

FROM: Jeffrey A. Ogden, Ph.D.
AFIT IRB Research Reviewer
2950 Hobson Way
Wright-Patterson AFB, OH 45433-7765

SUBJECT: Approval for exemption request from human experimentation requirements (32 CFR 219, DoDD 3216.2 and AFI 40-402) for student research on the Air Mobility Consolidation.

1. Your request was based on the Code of Federal Regulations, title 32, part 219, section 101, paragraph (b) (2) Research activities that involve the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior unless: (i) Information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (ii) Any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

2. Your study qualifies for this exemption because you are not collecting sensitive data, which could reasonably damage the subjects' financial standing, employability, or reputation. Further, the demographic data you are collecting and the way that you plan to report it cannot realistically be expected to map a given response to a specific subject.

3. This determination pertains only to the Federal, Department of Defense, and Air Force regulations that govern the use of human subjects in research. Further, if a subject's future response reasonably places them at risk of criminal or civil liability or is damaging to their financial standing, employability, or reputation, you are required to file an adverse event report with this office immediately.

JEFFREY A. OGDEN, PH.D.
AFIT Research Reviewer

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14. ABSTRACT

This research examined the impact of a proposed consolidation of the geographic Air Mobility Divisions (AMD) and the Tanker Airlift Control Center (TACC). The researcher conducted a three-round Delphi study of 20 Air Force senior leaders in order to ascertain the potential positives and negatives of Mobility Air Forces command and control (C2) consolidation. While the study did not achieve panel consensus in all researched areas, it did highlight some areas of significant concern that should be explored before pursing any further discussion of consolidation. The study also underscored the current organizational success areas for both AMDs and TACC. Clearly, the consolidation conundrum does not lend itself to precise analytical methods, but the Delphi study provided subjective judgments from a collective panel in order to establish foundational information. The intent of the study was to provide a basis for Air Force leaders, so that decisions can be made to shape and mold the future construct of the Mobility Air Force C2 enterprise. However, the panel results appear to indicate that given current information and context, AMD consolidation should not be a desired end state at this time. Yet, as the Air Force continues to evolve and new technologies and information develop consolidation should be revisited.

15. SUBJECT TERMS

AMD, Air Mobility Division, TACC, Command and Control, Tanker Airlift Control Center, JFACC, Delphi

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